

Integrating the Healthcare Enterprise



**IHE Eye Care
Technical Framework Supplement**

**General Eye Evaluation
(GEE)**

Trial Implementation

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Foreword

This is a supplement to the IHE Eye Care Technical Framework V3.7. Each supplement undergoes a process of public comment and trial implementation before being incorporated into the volumes of the Technical Frameworks.

This supplement is published for Trial Implementation on June 29, 2012 and may be available for testing at subsequent IHE Connectathons. The supplement may be amended based on the results of testing. Following successful testing it will be incorporated into the Eye Care Technical Framework. Comments are invited and may be submitted at <http://www.ihe.net/eyecare/eyecarecomments.cfm>.

This supplement describes changes to the existing technical framework documents and where indicated amends text by addition (**bold underline**) or removal (**~~bold strikethrough~~**), as well as addition of large new sections introduced by editor's instructions to "add new text" or similar, which for readability are not bolded or underlined.

"Boxed" instructions like the sample below indicate to the Volume Editor how to integrate the relevant section(s) into the relevant Technical Framework volume:

<i>Replace Section X.X by the following:</i>
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General information about IHE can be found at: www.ihe.net

Information about the IHE Eye Care domain can be found at:
<http://www.ihe.net/Domains/index.cfm>

Information about the structure of IHE Technical Frameworks and Supplements can be found at:
<http://www.ihe.net/About/process.cfm> and <http://www.ihe.net/profiles/index.cfm>

The current version of the IHE Technical Framework can be found at:
http://www.ihe.net/Technical_Framework/index.cfm

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Introduction to this Supplement

This supplement is written for Trial Implementation. It introduces a new Eye Care content profile General Eye Evaluation (GEE). Updates to volume 1 include additions to section 2 to introduce GEE and a new section 8. Updates to volume 2 include new sections for the document content information.

This supplement is written as changes to the documents listed below. The reader should have already read and understood these documents:

1. [IHE Eye Care Technical Framework Volume 1, Integration Profiles](#)
2. [IHE Eye Care Technical Framework Volume 2, Transactions](#)

This supplement also references other documents¹. The reader should have already read and understood these documents:

1. [IT Infrastructure Technical Framework Volume 1](#)
2. [IT Infrastructure Technical Framework Volume 2](#)
3. [IT Infrastructure Technical Framework Volume 3](#)
4. [IHE Patient Care Coordination Technical Framework Volume 1](#)
5. [IHE Patient Care Coordination Technical Framework Volume 2](#)
6. HL7 and other standards documents referenced in Volume 1 and Volume 2

Profile Abstract

The General Eye Evaluation content profile defines the structure of the data that is often collected during a patient's general eye examination. The American Academy of Ophthalmology (AAO) has created a collection of recommended best practices for this and other aspects of eye care that it terms the Preferred Practice Patterns (PPP). The information in this document is based upon the "[Comprehensive Adult Medical Eye Evaluation October 2010](#)" PPP specification generated by the AAO. The comprehensive eye examination consists of an evaluation of the physiological function and the anatomical status of the eye, visual system and its related structures.

Open Issues and Questions

1. *Not all code values are defined. IHE needs to coordinate with LOINC and SNOMED for specific codes that are missing.*

¹ The first five documents can be located on the IHE Website at http://www.ihe.net/Technical_Framework/index.cfm. The remaining document can be obtained from its respective publisher.

2. *IHE Eye Care OIDs will be assigned when the document is in Trial Implementation state.*
3. *When specifying specific eye care physical exam sections (i.e., intraocular pressure, pupils, anterior segment...), this specification currently always constraints the type of ocular observation using SNOMED CT Observable Entity hierarchy (363787002) codes. The Ocular Observation entry does not define any restrictions; therefore, codes other than SNOMED could be used if needed in the future. Should we keep this model or restrict this flexibility and always specify SNOMED for observation codes at the Ocular Observation level?*

Closed Issues

1. *Not all code values are defined. IHE needs to coordinate with LOINC and SNOMED for specific codes that are missing.
Status - Submissions have been made to LOINC and SNOMED.*
2. *IHE Eye Care OIDs will be assigned when the document is in Trail Implementation state.*
3. *When specifying specific eye care physical exam sections (i.e., intraocular pressure, pupils, anterior segment...), this specification currently always constraints the type of ocular observation using SNOMED CT Observable Entity hierarchy (363787002) codes. The Ocular Observation entry does not define any restrictions; therefore, codes other than SNOMED could be used if needed in the future. Should we keep this model or restrict this flexibility and always specify SNOMED for observation codes at the Ocular Observation level
Status – IHE TC decided to leave the ocular observation as is, so no changes.*

Volume 1 – Profiles

Add the following to section 1.7

1.7 History of Annual Changes

Added the General Eye Evaluation (GEE) Content Profile. This content profile defines the structure of the data that is often collected during a patient's general eye examination.

Add the following section to section 2.2

2.2.6 General Eye Evaluation Content Profile

General Eye Evaluation (GEE) is a content profile that defines the structure of the data that is often collected during a patient's routine eye care examination. An eye examination consists of an evaluation of the physiological function and the anatomical status of the eye, visual system, and its related structures. Also included is related patient information such as history, allergies, review of systems, social history, etc.

2.3 Actors Descriptions

Add column to table 2.3-1

Content Creator – Creates the document content.

Content Consumer – Consumes the document content.

Add Section 8

8 General Eye Evaluation (GEE) Content Profile

General Eye Evaluation (GEE) is a content profile that defines the structure of the data that is often collected during a patient’s routine eye care examination. An eye examination consists of an evaluation of the physiological function and the anatomical status of the eye, visual system, and its related structures. Also included is related patient information such as history, allergies, review of systems, social history, etc.

8.1 Purpose and Scope

Change referenced section numbering when merged into technical framework

The General Eye Evaluation content profile defines the structure of the data that is often collected during a patient’s general eye examination. The American Academy of Ophthalmology (AAO) has created a collection of recommended best practices for this and other aspects of eye care that it terms the Preferred Practice Patterns (PPP). The information in this document is based upon the “[Comprehensive Adult Medical Eye Evaluation October 2010](#)” PPP specification generated by the AAO. The comprehensive eye examination consists of an evaluation of the physiological function and the anatomical status of the eye, visual system and its related structures.

8.2 Process Flow

8.2.1 Use Cases

Change referenced section numbering when merged into technical framework

Comprehensive eye care deals with a broad spectrum of specialty disciplines each with its own lexicon, examination techniques, and procedures. The highest volume and most central component of this is the routine adult eye examination. A patient presents for a general eye examination and demographic data is either created, retrieved from existing databases, or updated. The patient provides a chief complaint and historical information relevant to the eye, and a partial or complete examination of the eye and visual system is performed using various optical devices. Multiple people may contribute to this process including receptionist, technician, and physician.

The PPP for a Comprehensive Adult Medical Eye Evaluation provides a roadmap for data collection. The nature of the data varies widely and may be discrete and defined by existing terminology standards (e.g., visual acuity, intra ocular pressure) or narrative and available only as free text (e.g., description of a lesion, description of morphology). After this data is collected the clinician will arrive at an assessment and management plan. All of this must be recorded in a fashion that will allow subsequent transfer across diverse information platforms without loss of content or meaning using existing standards and protocols.

8.3 Actors/Transactions

There are two actors in this profile, the Content Creator and the Content Consumer. Content is created by a Content Creator and is consumed by a Content Consumer. The sharing or transmission of content from one actor to the other is addressed by the appropriate use of IHE profiles described below, and is out of scope of this profile. A Document Source or a Portable Media Creator may embody the Content Creator Actor. A Document Consumer, a Document Recipient or a Portable Media Importer may embody the Content Consumer Actor. The sharing or transmission of content or updates from one actor to the other is addressed by the use of appropriate IHE profiles described in the section on Content Bindings with XDS, XDM and XDR in PCC TF-2:4.1



Figure 8.3-1 Actor Diagram

Table 8.3-1 General Eye Evaluation Options

Actor	Option	Section
Content Consumer	View Option (See Note 1)	PCC TF-2: 3.1.1
	Document Import Option (See Note 1)	PCC TF-2: 3.1.2
	Section Import Option (See Note 1)	PCC TF-2: 3.1.3
	Discrete Data Import Option (See Note 1)	PCC TF-2: 3.1.4
Content Creator	No options defined	

Note 1: The Actor shall support at least one of these options.

8.4 Grouping

This section describes the behaviors expected of the Content Creator and Content Consumer actors of this profile when grouped with actors of other IHE profiles.

8.4.1 Content Bindings with XDS, XDM and XDR

It is expected that the exchanges of this content will occur in an environment where healthcare organizations have a coordinated infrastructure that serves the information sharing needs of this community of care. Several mechanisms are supported by IHE profiles:

- A registry/repository-based infrastructure is defined by the IHE Cross Enterprise Document Sharing (XDS) and other IHE Integration Profiles such as patient identification (PIX & PDQ) and notification of availability of documents (NAV).

- A media-based infrastructure is defined by the IHE Cross Enterprise Document Media Interchange (XDM) profile.
- A reliable messaging-based infrastructure is defined by the IHE Cross Enterprise Document Reliable Interchange (XDR) profile.
- All of these infrastructures support Security and privacy through the use of the Consistent Time (CT) and Audit Trail and Node Authentication (ATNA) profiles.

For more details on these profiles, see the IHE IT Infrastructure Technical Framework. Content profiles may impose additional requirements on the transactions used when grouped with actors from other IHE Profiles.

8.4.2 Cross Enterprise Document Sharing, Media Interchange and Reliable Messages

Actors from the ITI XDS, XDM and XDR profiles most often embody the Content Creator and Content Consumer sharing function of this profile. A Content Creator or Content Consumer may be grouped with appropriate actors from the XDS, XDM or XDR profiles, and the metadata sent in the document sharing or interchange messages has specific relationships to the content of the clinical document described in the content profile.

8.4.3 Audit Trail and Node Authentication (ATNA)

When the Content Creator or Content Consumer actor of this profile is grouped with the Secure Node or Secure Application actor of the ATNA profile, the content creator actor shall generate appropriate audit record events for each of the following trigger events:

Table 8.4.3-1 Minimum Trigger Event Set

Trigger Event	Description
Actor-start-stop	Start up and shut-down of the content creator or content consumer actor.
Patient-Record-Event	Creation, access, modification ⁴ or deletion of the content described within this profile.
Node-Authentication-Failure	Secure node authentication failure is detected.

The above list is a minimum set that must be demonstrated by all actors of this profile when grouped with the secure node or secure application actor. Additional audit records shall also be generated depending upon the actions available in the product implementing the secure node or secure application actor.

8.4.4 Notification of Document Availability (NAV)

A Document Source should provide the capability to issue a Send Notification Transaction per the ITI Notification of Document Availability (NAV) Integration Profile in order to notify one or more Document Consumer(s) of the availability of one or more documents for retrieval. One of

the Acknowledgement Request options may be used to request from a Document Consumer that an acknowledgement should be returned when it has received and processed the notification. A Document Consumer should provide the capability to receive a Receive Notification Transaction per the NAV Integration Profile in order to be notified by Document Sources of the availability of one or more documents for retrieval. The Send Acknowledgement option may be used to issue a Send Acknowledgement to a Document Source that the notification was received and processed.

8.4.5 Document Digital Signature (DSG)

When a Content Creator Actor needs to digitally sign a document in a submission set, it may support the Digital Signature (DSG) Content Profile as a Document Source. When a Content Consumer Actor needs to verify a Digital Signature, it may retrieve the digital signature document and may perform the verification against the signed document content.

8.5 Content Modules

Table 8.5-1 General Eye Evaluation Modules

Comprehensive Adult Medical Eye Evaluation Preferred Practice Patterns	Template Name	Template Id
Demographic data	Header Modules	N/A
Identity of the patient's other pertinent health care providers	Healthcare Providers and Pharmacies	1.3.6.1.4.1.19376.1.5.3.1.2.3
Chief Complaint	Chief Complaint	1.3.6.1.4.1.19376.1.5.3.1.1.13.2.1
Present status of visual function	Functional Status	1.3.6.1.4.1.19376.1.5.3.1.3.17
History of Present Illness and Ocular Symptoms	History of Present Illness	1.3.6.1.4.1.19376.1.5.3.1.3.4
Ocular history	Ocular History	1.3.6.1.4.1.19376.1.12.1.2.3
Systemic history: pertinent medical conditions and previous surgery	History of Past Illness	1.3.6.1.4.1.19376.1.5.3.1.3.8
	List of Surgeries	1.3.6.1.4.1.19376.1.5.3.1.3.11
	Coded List of Surgeries	1.3.6.1.4.1.19376.1.5.3.1.3.12
Note 1	Review of Systems	1.3.6.1.4.1.19376.1.5.3.1.3.18
Medications - ophthalmic and systemic medications currently used, including nutritional supplements	Medications	1.3.6.1.4.1.19376.1.5.3.1.3.19
	Ophthalmic Medications	1.3.6.1.4.1.19376.1.12.1.2.4
Allergies or adverse reactions to medications	Allergies and Other Adverse Reactions	1.3.6.1.4.1.19376.1.5.3.1.3.13
Note 1	Active Problems	1.3.6.1.4.1.19376.1.5.3.1.3.6
Family History	Family Medical History	1.3.6.1.4.1.19376.1.5.3.1.3.14
	Coded Family Medical History	1.3.6.1.4.1.19376.1.5.3.1.3.15
Social history	Social History	1.3.6.1.4.1.19376.1.5.3.1.3.16
	Coded Social History	1.3.6.1.4.1.19376.1.5.3.1.3.16.1
Ocular Examination	Ocular Physical Exam	1.3.6.1.4.1.19376.1.12.1.2.5

Comprehensive Adult Medical Eye Evaluation Preferred Practice Patterns	Template Name	Template Id
Note 1	Assessment and Plan	1.3.6.1.4.1.19376.1.5.3.1.1.13.2.5

Note 1: Blank entries in this column indicate that the information was not included in the PPP, however is included in this content profile.

8.6 Security Considerations

<i>Add Section X</i>

Volume 2 – Transactions and Content Modules

Update Section 3

3 Framework Overview

The IHE Technical Framework is based on actors that interact through transactions; **those transactions may be further qualified with respect to their content.**

Add new Section 3.1

3.1 Content Modules

There is often a very clear distinction between the transactions in a messaging framework used to package and transmit information, and the information content actually transmitted in those messages. This is especially true when the messaging framework begins to move towards mainstream computing infrastructures being adopted by the healthcare industry.

In these cases, the same transactions may be used to support a wide variety of use cases in healthcare, and so more and more the content and use of the message also needs to be profiled, sometimes separately from the transaction itself. Towards this end IHE has developed the concept of a Content Integration Profile.

Content Integration Profiles specify how the payload of a transaction fits into a specific use of that transaction. A content integration profile has three main parts. The first part describes the use case (this is found in Volume 1 in the definition of each Profile). The second part is a Content Module (found in this Volume 2), which describes the payload of the transaction; a content module is specified so as to be independent of the transaction in which it appears. The third part is binding to a specific IHE transaction, which describes how the content affects the transaction. The binding of CDA-based medical documents to workflow transactions is described in the Profile definition in Volume 1 (e.g., see IHE EYECARE TF-1:8.4).

Add new Section 5

5 Namespaces and Vocabularies

This section lists the namespaces and identifiers defined or referenced by the IHE Eye Care Technical Framework and the vocabularies defined or referenced herein.

codeSystem	codeSystemName	Description
1.3.6.1.4.1.19376.1.5.3.1	IHE PCC Template Identifiers	This is the root OID for all IHE PCC Templates. A list of PCC templates can be found in IHE PCC TF-2:6.2 (CDA Release 2.0 Content Modules).
2.16.840.1.113883.6.1	LOINC	Logical Observation Identifier Names and Codes
2.16.840.1.113883.6.96	SNOMED CT	SNOMED Controlled Terminology
1.2.840.10008.2.16.4	DCM	DICOM Controlled Terminology; PS 3.16 Content Mapping

codeSystem	codeSystemName	Description
		Resource, Annex D
1.3.6.1.4.1.19376.1.12.1	IHE Eye Care Template Identifiers	This is the root OID for all IHE Eye Care Templates.
1.3.6.1.4.1.19376.1.4.1	IHE Cardiology Template Identifiers	This is the root OID for all IHE Cardiology Templates.

5.1 IHE Format Codes

The table below lists the format codes, root template identifiers and media types used by the IHE Profiles specified in the Eye Care Technical Framework.

Note: The code system for these codes is **1.3.6.1.4.1.19376.1.2.3** as assigned by the ITI Domain for codes used for the purposes of cross-enterprise document sharing (XDS).

Profile	Format Code	Media Type	Template ID
General Eye Evaluation (GEE)	urn:ihe:eyecare:geneyeeval:2012	text/xml	1.3.6.1.4.1.19376.1.12.1.1.1

<i>Add New Section 6</i>

6 Content Modules

6.1 Conventions

6.1.1 Content Module Conventions

6.1.1.1 Cardinality Constraints

Within Section 6, the following conventions are used to describe data element cardinality constraints.

The cardinality expresses the number of times an attribute or association may appear in a CDA document instance that conforms to the specifications described within section 6. Cardinality is expressed as a minimum and a maximum value separated by ‘..’, and enclosed in ‘[]’, e.g., ‘[0..1]’.

Minimum cardinality is expressed as an integer that is equal to or greater than zero. If the minimum cardinality is zero, the element need only appear in message instances when the sending application has data with which to value the element. Mandatory elements must have a minimum cardinality greater than zero.

The maximum cardinality is expressed either as a positive integer (greater than zero and greater than or equal to the minimum cardinality) or as unlimited using an asterisk (“*”).

6.1.1.2 Data Element Optionality Constraints

Within Section 6, the following conventions are used to describe data element optionality constraints. Where applicable, the "interaction" between cardinality constraints and optionality constraints are also described below.

Table 6.1.1.2-1 Data Element Optionality Constraints

Optionality	Description
M	A "Mandatory" section, entry or data element is one that SHALL always be provided. If there is information available, the element must be present and non-null. If there is no information available, or it cannot be transmitted, the data element must contain a value indicating the reason for omission of the data. Note that any element declared to be "Mandatory" must also be "Required" and have a minimum cardinality of one.
R	<p>A "Required" section, entry or element SHALL be included in the document if its minimum cardinality is one. If the data exists, the sending application SHALL send it as a non-null value or a non-empty element. If the data does not exist and if the minimum cardinality is greater than zero, then the sending application SHALL send an appropriate null value. Only if data does not exist for a required element and that element has a minimum cardinality of 0 MAY the required element be omitted in a document.</p> <p>In all cases, if a required element is present in a document received by an actor claiming support for the Profile, then it SHALL be correctly processed by the receiving actor. A receiving actor SHALL NOT raise an error due to the absence of a required element with a cardinality of 0, although it MAY issue a warning that required information is missing.</p> <p>For required elements, conforming applications must demonstrate their ability to provide and communicate not null values. Receiving applications must demonstrate their ability to receive and process (e.g., store, or display to users) not null values for required elements.</p>

Optionality	Description
	This is equivalent to a SHOULD requirement.
O	An optional data element is one that MAY be provided, whether the information is available or not. If the implementation elects to support this optional section, then its support shall meet the requirement set forth for the "Required" or R.
C	A conditional data element is one that is required, or optional, depending upon other conditions. These will have further notes explaining when the data element is required.

Note: The definitions of M, R, and O are consistent with HL7 v3 Conformance profiles, but differ slightly from the 2010 and earlier versions of IHE Patient Care Coordination Content or Workflow profiles. It is expected that all IHE Technical Framework documents will converge to these HL7-based definitions.

6.1.1.3 Coded Terminology Values

Coded terminology values are used extensively, and are encoded in CDA documents using the CD (Concept Descriptor) data type. Generally, these values are specified in Profile requirements using a triplet of the code value (encoded in XML attribute `code`), the coding scheme (encoded in XML attribute `codeSystemName`), and the code meaning (encoded in XML attribute `displayName`). When necessary to disambiguate such a triplet from the rest of the specification text, it may be enclosed in curly braces, e.g., {160245001, SNOMED CT, “No current problems or disability”}.

Representation of a coded terminology value in the CD data type requires encoding of the coding scheme OID in XML attribute `codeSystem`. For readability, these OIDs are not elaborated in the specification text. Content Creator actors must use the appropriate OIDs from Section 5 in encoding CD data type values.

Unless otherwise specified, value sets are specified with STATIC stability and have CWE (Coded With Extensibility) coding strength, as defined in the HL7 Core Principles and Properties of v3 Models. That is, the version of the value set as of the date of publication of the Profile is binding, and an implementation may use coded concepts not present in the value set.

6.1.2 Structure of Content Modules

For CDA Release 2 the Content Modules are organized by document, section, entry, and header elements.

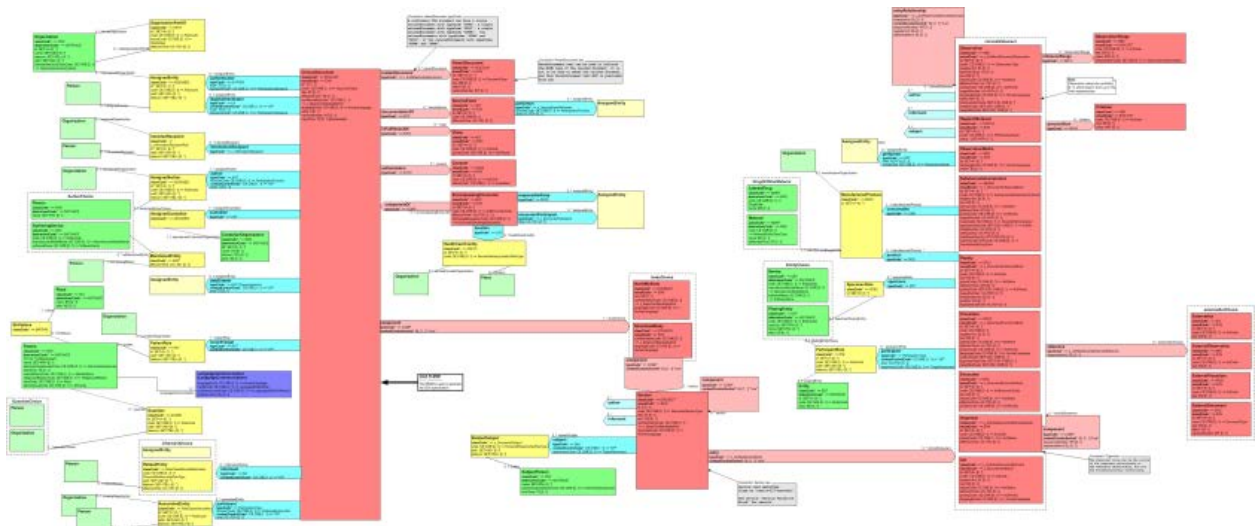


Figure 6.1.2-1 CDA R2 R-MIM with location of Document, Sections, and Entries

Each content module is defined in terms of constraints that must be obeyed by instances of that content module, in effect a contract between the Content Creator and the Content Consumer. Each content module has a name, also known as its template identifier. The template identifiers are used to identify the contract implied by the content module.

Content modules may inherit features of other content modules of the same type (Document, Section, or Entry) by defining the parent content module that they inherit from. They may not inherit features from a different type. Although information in the CDA Header is in a different location than information in a CDA Entry, these two content modules are considered to be of the same type, and so may inherit from each other when necessary.

Each content module has a list of data elements that are mandatory (M), required if known (R), optional (O), and conditional (C). The presentation of this information varies with the type of content module, and is described in more detail below. Additional data elements may be provided by the sender that are not defined by a specific content module, but the receiver is not required to interpret them. Thus, it is not an error to include more than is asked for, but it is an error to reject a content module because it contains more than is defined by the template. This allows values to be added to the content modules delivered in this framework, through extensions to it that are not defined or profiled by IHE. It further allows content modules to be defined later by IHE that are refinements or extensions over previous content modules.

In order to retain this capability, constraints that apply to any content module will always apply to any content modules that inherit from it. Thus, the "contracts" are always valid down the inheritance hierarchy. Second, data elements of a content module will rarely be deprecated. This will usually occur only in the cases where they have been deprecated by the base standard. While any specific content module has a limited scope and set of use cases, deprecating the data element prevents any future content module from taking advantage of what has already been

defined when a particular data element has been deprecated simply because it was not necessary in the original use case.

6.1.2.1 Document Content Modules

Each **document** content module will define the appropriate codes used to classify the document, and will also describe the specific section and header data elements that are included. The code used to classify it is specified using an external vocabulary, typically LOINC in the case of CDA Release 2 documents. The set of data elements that make up the document are defined, including the whether these data elements must, should or may be included in the document. Each data element is mapped to a lower level content module via a template identifier, and the document content module will further indicate whether these data elements are mandatory, required if known or optional. Thus, a document content module contains as constraints:

- The template identifier of the parent content module when there is one.
- The LOINC code or codes that are used to classify the document.
- A possibly empty set of mandatory, required if known, and optional header content modules, and their template identifiers.
- A possibly empty set of mandatory, required if known, and optional section content modules, and their template identifiers.
- Other constraints as necessary.

The order of section content modules is not specified; sections may appear in any order, and may be nested, in accordance with local implementation style specifications.

6.1.2.1.1 Document Content Module Table

The Document Content Module is specified using the following table.

Template ID				
Parent Template				
General Description				
Document Code				
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Header Elements				
Sections				

This table implies the following conformance statements:

1. The document SHALL include the specified Template ID in the <templateID> element of the <clinicalDocument> act element (the CDA root act).
2. The document SHALL conform to all the requirements of the specified Parent Template(s).
3. The document SHALL include the specified Document Code in the <code> element of the <clinicalDocument> act element, except if the specified Document Code includes the keyword “SHOULD or “MAY”; in the latter case, this requirement is relaxed to the requirement strength of those keywords.
4. The document SHALL include the specified Header Elements in accordance with their specified Cardinality and Optionality (Opt column value, as described in Section 6.1.1), in accordance with the specified Template ID and further constraints specified in the identified Technical Framework section.
5. The document SHALL include the specified Sections in accordance with their specified Cardinality and Optionality (Opt column value, as described in Section 6.1.1), in accordance with the specified Template ID and further constraints specified in the identified Technical Framework section.

Note: The further constraints are typically specific value sets to be applied to code elements in the template.

The Document Content Module table may be supplemented with additional specific conformance requirements.

6.1.2.2 Section Content Modules

Section content modules will define the content of a section of a clinical document. Sections will usually contain narrative text, and so this definition will often describe the information present in the narrative, although sections may be wholly comprised of subsections.

Sections may contain various subsections. If no subsections are included, a section may not contain entries without providing narrative text at the section level. These subsections may be mandatory, required if known or optional. Sections may also contain various entries, and again, these may be mandatory, required if known, or optional.

Sections can inherit constraints from another parent section content module. Sections are classified using an external vocabulary (again typically this would be LOINC, although in some cases DICOM), and so the list of possible section codes is also specified. Sections that inherit from another section module will specify the same section code(s) as its parent, unless it further restricts the type of section to smaller set of codes.

Thus, a section content module will contain as constraints:

- The template identifier of the parent content module when there is one.
- The code or codes that shall be used to classify the section.
- A possibly empty set of mandatory, required if known, and optional section content modules, and their template identifiers for the subsections of this section.

- A possibly empty set of mandatory, required if known, and optional entry content modules, and their template identifiers.
- Other constraints as necessary.

6.1.2.2.1 Section Content Module Table

The Section Content Module is specified using the following table.

Template ID				
Parent Template				
General Description				
Section Code				
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Subsections				
Entries				

This table implies the following conformance statements:

1. The section SHALL include the specified Template ID in the <templateID> element of the <section> act element.
2. The section SHALL conform to all the requirements of the specified Parent Template.
3. The section SHALL include the specified Section Code in the <code> element of the <section> act element, except if the specified Section Code includes the keyword “SHOULD or “MAY”; in the latter case, this requirement is relaxed to the requirement strength of those keywords.
4. The section SHALL include the specified Subsections in accordance with their specified Cardinality and Optionality (Opt column value, as described in Section 6.1.1), in accordance with the specified Template ID and further constraints specified in the identified Technical Framework section.
5. The section SHALL include the specified Entries in accordance with their specified Cardinality and Optionality (Opt column value, as described in Section 6.1.1), in accordance with the specified Template ID and further constraints specified in the identified Technical Framework section.

The Section Content Module table may be supplemented with additional specific conformance requirements.

6.1.2.2.2 Observation Entry Constraint Table

Constraints on Entries may be further specified using the following table. The template for the entry (typically the IHE PCC Simple Observation template) is specified by the invoking table, for which this table provides additional constraint specifications. Multiple rows may be present in the table to specify constraints on multiple entries based on a template invoked with cardinality greater than 1.

Opt	Exam Type Condition	observation/code	Data Type	Unit of Measure	Value Set

This table implies the following conformance statements:

1. There SHALL be entries in each row in the table in accordance with the specified Cardinality and Optionality (Opt column value, as described in Section 6.1.1).
2. Conditional (C) entries SHALL be present in accordance with the specified Exam Type Condition.

Note: The exam type is specified in the CDA Header in the documentationOf / serviceEvent / code element.

3. The entry SHALL include the specified observation / code element value. The specified targetSiteCode, methodCode, and interpretationCode elements MAY be included.

Note: The codes may be specified as a value selected from an identified Value Set.

4. The entry SHALL include a value of the specified Data Type.
5. If Data Type is PQ, the entry value SHALL use the specified Unit of Measure.
6. If Data Type is CD, the entry value SHALL be selected from the specified Value Set.

Notes: 1. The code may be specified as a single value, rather than as a selection from a Value Set.

2. The Value Set table entry may indicate the presence of additional constraints, e.g., for specification of severity, by a '+' and a constraint type. Such additional constraints will have specific requirements specified outside the table.

6.1.2.3 Entry and Header Content Modules

Entry and **Header** content modules are the lowest level of content for which content modules are defined. These content modules are associated with classes from the HL7 Reference Information Model (RIM). These "RIM" content modules will constrain a single RIM class. Entry content modules typically constrain an "Act" class or one of its subtypes, while header content modules will normally constrain "Participation", "Role" or "Entity" classes, but may also constrain an "Act" class.

Entry and Header content modules describe the mandatory, required if known, and optional XML elements and attributes that are present in the CDA Release 2 instance. Header and Entry content modules may also be built up using other Header and Entry content modules. An entry or header content module may also specify constraints on the vocabularies used for codes found in

the entry, or data types for the values found in the entry. Thus, an entry or header content module will contain as constraints:

- The template identifier of the parent content module when there is one.
- A description of the XML elements and attributes used in the entry, along with explanations of their meaning.
- An indication of those XML elements or attributes that are mandatory, required if known, or optional.
- Vocabulary domains to use when coding the entry.
- Data types used to specify the value of the entry.
- Other constraints as necessary.

6.1.2.3.1 Header Content Module Table

A Header Content Module is specified using the following table.

Template ID					
Parent Template					
General Description					
Header Element					
Code					
Opt	Participation	Description	Template	Spec Document	Con-straint

This table implies the following conformance statements:

1. The specified Header Element SHALL be present in the CDA header.
 Note: This is limited by the Cardinality and Optionality of the header data element as specified in the template that invokes this Content Module.
2. The header data element SHALL include the specified Template ID in the <templateID> element of the relevant act element.
3. The header data element SHALL conform to all the requirements of the specified Parent Template.
4. The header data element SHALL include the specified Code in the <code> element, except if the specified Code includes the keyword “SHOULD or “MAY”; in the latter case, this requirement is relaxed to the requirement strength of those keywords.
5. The header data element SHALL include the specified subsidiary Participation data elements in accordance with their specified Cardinality and Optionality (Opt column value, as described in Section 6.1.1), using the specified Participation <typeCode>

element, and in accordance with the specified Template ID and further constraints specified in the identified Technical Framework section.

The Header Content Module table may be supplemented with additional specific conformance requirements.

6.1.2.3.2 Entry Content Module Table

An Entry Content Module is specified using the following table.

Template ID					
Parent Template					
General Description					
Class/Mood		Code		Value Type	Value
Opt	entryRelationship	Description	Template	Spec Document	Constraint

This table implies the following conformance statements:

1. The entry SHALL include the specified Template ID in the <templateID> element of the clinical statement act element.
2. The entry SHALL conform to all the requirements of the specified Parent Template.
3. The entry SHALL include the specified classCode and moodCode values, and be conformant to the HL7 v3 requirements of that Act Class and Mood.
4. The entry SHALL include the specified entry Code in the <code> element of the clinical statement act element, except if the specified Section Code includes the keyword “SHOULD or “MAY”; in the latter case, this requirement is relaxed to the requirement strength of those keywords.
5. If of Class/Mood OBS/EVN, the entry SHALL include a value of the specified Data Type.
6. If Data Type is CD, the entry value SHALL be the specified Value.
 Note: The code may be specified as a value.
7. The entry SHALL include the specified subsidiary Entries in accordance with their specified Cardinality and Optionality (Opt column value, as described in Section 6.1.1), using the specified entryRelationship <typeCode> element, and in accordance with the specified Template ID and further constraints specified in the identified Technical Framework section.

The Entry Content Module table may be supplemented with additional specific conformance requirements.

6.1.2.4 Value Sets

Value sets, which are potentially reusable in a variety of contexts, are described separately from the content modules. Each value set is identified by name and OID, and its constituent concept values are listed in a table.

Value sets concepts may be drawn from multiple coding systems and some concepts may be represented in more than one coding system. When there is a choice of coding system, the content module that invokes the value set may establish constraints on when to use a particular system (e.g., based on local policy or national regulation). The content module that invokes the value set may also establish constraints on whether concepts not in the defined value set can be used (e.g., using the HL7 CWE [coded with exceptions] and CNE [coded no exceptions] domain qualifiers); unless otherwise specified, the value set is extensible (CWE). The HL7 v3 CD data type allows the representation of a concept by a code together with a translation code in a different coding system; when multiple codes are provided for a concept, use of such translation codes is recommended.

6.2 Folder Document Modules

NA

6.3 CDA Release 2 Content Modules

6.3.1 CDA Document Content Modules

6.3.1.1 General Eye Evaluation (GEE) Document Content Module

1.3.6.1.4.1.19376.1.12.1.1.1

General Eye Evaluation (GEE) is a content profile that defines the structure of the data that is often collected during a patient's routine eye care examination. An eye examination consists of an evaluation of the physiological function and the anatomical status of the eye, visual system, and its related structures. Also included is related patient information such as history, allergies, review of systems, social history, etc.

1. The templateId/@root for conformance to this document SHALL be 1.3.1.4.1.19376.1.12.1.1.1 to assert conformance to this template.
2. The ClinicalDocument/code LOINC code for the document SHALL be 70947-7, "General eye evaluation".
3. The XDSDocumentEntry format code for this content SHALL be urn:ihe:eyecare:geneyeeval:2012
4. The mapping of CDA header attributes to XDS metadata SHALL be identical to the XDS-MS mapping specified in PCC TF-2: 4.1.1.

Table 6.3.1.1-1 General Eye Evaluation (GEE) Document Content Specification

Comprehensive Adult Medical Eye Evaluation Preferred Practice Patterns	Template Name	OPT	Template Id
Demographic data	Header Modules	M [1..1]	N/A
Identity of the patient's other pertinent health care providers	Healthcare Providers and Pharmacies	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.2.3
Chief Complaint	Chief Complaint	R[1..1]	1.3.6.1.4.1.19376.1.5.3.1.1.13.2.1
Present status of visual function	Functional Status	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.17
History of Present Illness and Ocular Symptoms	History of Present Illness	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.4
Ocular history	Ocular History	R[0..1]	1.3.6.1.4.1.19376.1.12.1.2.3
Systemic history: pertinent medical conditions and previous surgery	History of Past Illness	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.8
	List of Surgeries	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.11
	Coded List of Surgeries	O[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.12
Note 1	Review of Systems	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.18
Medications - ophthalmic and systemic medications currently used, including nutritional supplements	Medications	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.19
	Ophthalmic Medications	R[0..1]	1.3.6.1.4.1.19376.1.12.1.2.4
Allergies or adverse reactions to medications	Allergies and Other Adverse Reactions	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.13
Note 1	Active Problems	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.6
Family History	Family Medical History	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.14
	Coded Family Medical History	O[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.15
Social history	Social History	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.16
	Coded Social History	O[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.16.1
Ocular Examination	Ocular Physical Exam	M[1..1]	1.3.6.1.4.1.19376.1.12.1.2.5
Note 1	Assessment and Plan	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.1.13.2.5

Example XML Code

```
ClinicalDocument xmlns='urn:hl7-org:v3' >
  <typeId extension="POCD_HD000040" root="2.16.840.1.113883.1.3"/>
  <templateId root='1.3.6.1.4.1.19376.1.12.1.1.1'/>
  <id root=' ' extension=' '/>
  <code code='70947-7' displayName='General eye evaluation'
    codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC'/>
  <title>General Eye Evaluation</title>
  <effectiveTime value='20081004012005'/>
  <confidentialityCode code='N' displayName='Normal'
    codeSystem='2.16.840.1.113883.5.25' codeSystemName='Confidentiality' />
  <languageCode code='en-US'/>
  :
  <component>
    <section>
      <templateId root='1.3.6.1.4.1.19376.1.5.3.1.1.13.2.1'/>
      <!-- Required Chief Complaint Section content -->
    </section>
  </component>

  <component>
    <section>
      <templateId root='1.3.6.1.4.1.19376.1.5.3.1.3.17'/>
      <!-- Required if known Functional Status Illness Section content -->
    </section>
  </component>

  <component>
    <section>
      <templateId root='1.3.6.1.4.1.19376.1.5.3.1.3.4'/>
      <!-- Required if known History Present Illness Section content -->
    </section>
  </component>

  <component>
    <section>
      <templateId root='1.3.6.1.4.1.19376.1.12.1.2.3'/>
      <!-- Required if known Ocular History Section content -->
    </section>
  </component>

  <component>
    <section>
      <templateId root='1.3.6.1.4.1.19376.1.5.3.1.3.8'/>
      <!-- Required if known History of Past Illness Section content -->
    </section>
  </component>

  <component>
    <section>
      <templateId root='1.3.6.1.4.1.19376.1.5.3.1.3.11'/>
      <!-- Required if known List of Surgeries Section content -->
    </section>
  </component>

  <component>
    <section>
      <templateId root='1.3.6.1.4.1.19376.1.5.3.1.3.12'/>
      <!-- Required if known Coded List of Surgeries Section content -->
    </section>
  </component>
```

```
<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.5.3.1.3.18' />
    <!-- Required if known Review of Systems Section content -->
  </section>
</component>

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.5.3.1.3.19' />
    <!-- Required if known Medications Section content -->
  </section>
</component>

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.4' />
    <!-- Required if known Ocular Medications Section content -->
  </section>
</component>

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.5.3.1.3.13' />
    <!-- Required in known Allergies and Other Adverse Reactions Section content -->
  </section>
</component>

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.5.3.1.3.6' />
    <!-- Required if known Active Problems Section content -->
  </section>
</component>
```

```
<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.5.3.1.3.14' />
    <!-- Required if known Family History Section content -->
  </section>
</component>

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.5.3.1.3.15' />
    <!-- Required if known Coded Family History Section content -->
  </section>
</component>

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.5.3.1.3.16' />
    <!-- Required if known Social History Section content -->
  </section>
</component>

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.5.3.1.3.16.1' />
    <!-- Required if known Coded Social History Section content -->
  </section>
</component>

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.5' />
    <!-- Required Ocular Physical Exam Section content -->
  </section>
</component>

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.5.3.1.1.13.2.5' />
    <!-- Required if known Assessment and Plan Section content -->
  </section>
</component>

</structuredBody></component>
</ClinicalDocument>
```


6.3.2 CDA Section Content Modules

6.3.2.1 Ocular History 1.3.6.1.4.1.19376.1.12.1.2.3

Template ID	1.3.6.1.4.1.19376.1.12.1.2.3			
Parent Template	History of Past Illness 1.3.6.1.4.1.19376.1.5.3.1.3.8			
General Description	The ocular history section shall contain a narrative description of the patient’s ocular history.			
Section Code	70934-5, LOINC, “Ocular history”			
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Subsections				
R[0..1]	Ocular List of Surgeries	1.3.6.1.4.1.19376.1.12.1.2.1	EYECARE TF-2:6.3.2.2	
O[0..1]	Ocular Coded List of Surgeries	1.3.6.1.4.1.19376.1.12.1.2.2	EYECARE TF-2:6.3.2.3	

6.3.2.1.1 Parent Template

The parent of this template is History of Past Illness “1.3.6.1.4.1.19376.1.5.3.1.3.8”.

Example XML Code

```

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.5.3.1.3.8' />
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.3' />
    <id root=' ' extension=' ' />
    <code code='70934-5' displayName='Ocular history'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC' />
    <text>
      Text as described above
    </text>

    <component>
      <section>
        :
        <!-- Required if known Ocular List of Surgeries -->
        <templateId root='1.3.6.1.4.1.19376.1.12.2.1' />
        :
        <section>
          <component>

            <component>
              <section>
                :
                <!-- Optional Coded Ocular List of Surgeries -->
                <templateId root='1.3.6.1.4.1.19376.1.12.2.2' />
                :
                <section>
                  <component>
                </section>
              </section>
            </component>
          </section>
        </component>
      </section>
    </component>
  </section>
</component>

```

6.3.2.2 Ocular List of Surgeries 1.3.6.1.4.1.19376.1.12.1.2.1

Template ID	1.3.6.1.4.1.19376.1.12.1.2.1
Parent Template	List of Surgeries 1.3.6.1.4.1.19376.1.5.3.1.3.11
General Description	The ocular list of surgeries section shall contain a narrative description of the ocular diagnostic and therapeutic operative procedures and associated anesthetic techniques the patient received in the past.
Section Code	47519-4, LOINC, “History of procedures”

6.3.2.2.2 Parent Template

The parent of this template is List of Surgeries “1.3.6.1.4.1.19376.1.5.3.1.3.11”.

Example XML Code

```

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.5.3.1.3.11' />
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.1' />
    <id root=' ' extension=' ' />
    <code code='47519-4' displayName='History of procedures'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC' />
    <text>
      Text as described above
    </text>
  </section>
</component>

```

6.3.2.3 Ocular Coded List of Surgeries 1.3.6.1.4.1.19376.1.12.1.2.2

Template ID	1.3.6.1.4.1.19376.1.12.1.2.2			
Parent Template	Coded List of Surgeries 1.3.6.1.4.1.19376.1.5.3.1.3.12			
General Description	The ocular coded list of surgeries section shall include entries for procedures and references to procedure reports when known as described in the Entry Content Modules.			
Section Code	47519-4, LOINC, “History of procedures”			
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Entry				
R[1..1]	Procedure Entry	1.3.6.1.4.1.19376.1.5.3.1.4.19	PCC TF-2	
R[0..1]	Reference Entry	1.3.6.1.4.1.19376.1.5.3.1.4.4	PCC TF-2	

6.3.2.3.1 Parent Template

The parent of this template is Coded List of Surgeries “1.3.6.1.4.1.19376.1.5.3.1.3.12”.

Example XML Code

```

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.5.3.13.12' />
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.2' />
    <id root=' ' extension=' ' />
    <code code='47519-4' displayName='History of procedures'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC' />
    <text>
      Text as described above
    </text>
    <entry>
      :
      <!-- Required Procedure Entry -->
      <templateId root='1.3.6.1.4.1.19376.1.5.3.1.4.19' />
      :
    </entry>
    <entry>
      :
      <!-- Required if know Reference Entry -->
      <templateId root='1.3.6.1.4.1.19376.1.5.3.1.4.4' />
      :
    </entry>
  </section>
</component>

```

6.3.2.4 Ophthalmic Medications 1.3.6.1.4.1.19376.1.12.1.2.4

Template ID	1.3.6.1.4.1.19376.1.12.1.2.4			
Parent Template	Medications 1.3.6.1.4.1.19376.1.5.3.1.3.19			
General Description	The ocular medications section shall contain those medications prescribed for patient’s ophthalmic conditions.			
Section Code	70935-2, LOINC, “Ophthalmic medications”			
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Entry				
R[0..1]	Medications	1.3.6.1.4.1.19376.1.5.3.1.4.7	PCC TF-2	

6.3.2.4.1 Parent Template

The parent of this template is Medications “1.3.6.1.4.1.19376.1.5.3.1.3.19”.

Example XML Code

```

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.5.3.1.3.19' />
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.4' />
    <id root=' ' extension=' ' />
    <code code='70935-2' displayName='Ophthalmic medications'
          codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC' />
    <text>
      Text as described above
    </text>
    <entry>
      :
      <!-- Required if known Medications -->
      <templateId root='1.3.6.1.4.1.19376.1.5.3.1.4.7' />
      :
    </entry>
  </section>
</component>

```

6.3.2.5 Ocular Physical Exam 1.3.6.1.4.1.19376.1.12.1.2.5

Template ID	1.3.6.1.4.1.19376.1.12.1.2.5			
Parent Template	Physical Exam 1.3.6.1.4.1.19376.1.5.3.1.1.9.15			
General Description	The ocular physical exam section shall contain a description and detailed examination information about the eyes			
Section Code	70948-5, LOINC, “Ocular physical exam”			
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Subsections				
R[0..1]	Routine Eye Exam	1.3.6.1.4.1.19376.1.12.1.2.6	EYECARE TF-2.6.3.2.6	

6.3.2.5.1 Parent Template

The parent of this template is Physical Exam “1.3.6.1.4.1.19376.1.5.3.1.1.9.15”.

Example XML Code

```

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.5.3.1.1.9.15' />
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.5' />
    <id root=' ' extension=' ' />
    <code code='70948-5' displayName='Ocular physical exam'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC' />
    <text>
      Text as described above
    </text>
    <component>
      <section>
        :
        <!-- Required if known Routine Eye Exam-->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.2.6' />
        :
        <section>
        </section>
      </component>
    </section>
  </component>

```

6.3.2.6 Routine Eye Exam 1.3.6.1.4.1.19376.1.12.1.2.6

Template ID	1.3.6.1.4.1.19376.1.12.1.2.6			
Parent Template	Eyes 1.3.6.1.4.1.19376.1.5.3.1.1.9.19			
General Description	The routine eye exam section shall contain a description of any type of eye exam.			
Section Code	10197-2, LOINC, “Physical findings of eye”			
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Subsections				
R[0..1]	Visual Acuity	1.3.6.1.4.1.19376.1.12.1.2.7	EYECARE TF-2: 6.3.2.8	
R[0..1]	Vision Testing	1.3.6.1.4.1.19376.1.12.1.2.8	EYECARE TF-2: 6.3.2.7	
R[0..1]	Refractive Measurements	1.3.6.1.4.1.19376.1.12.1.2.9	EYECARE TF-2: 6.3.2.9	
R[0..1]	Lensometry Measurements	1.3.6.1.4.1.19376.1.12.1.2.10	EYECARE TF-2: 6.3.2.10	
R[0..1]	Intraocular pressure	1.3.6.1.4.1.19376.1.12.1.2.11	EYECARE TF-2: 6.3.2.11	
R[0..1]	Confrontation Visual Field	1.3.6.1.4.1.19376.1.12.1.2.12	EYECARE TF-2: 6.3.2.12	
R[0..1]	Eye External	1.3.6.1.4.1.19376.1.12.1.2.13	EYECARE TF-2: 6.3.2.13	
R[0..1]	Lacrimal	1.3.6.1.4.1.19376.1.12.1.2.14	EYECARE TF-2: 6.3.2.18	
R[0..1]	Pupils	1.3.6.1.4.1.19376.1.12.1.2.15	EYECARE TF-2:	

			6.3.2.14	
R[0..1]	Ocular alignment and motility	1.3.6.1.4.1.19376.1.12.1.2.16	EYECARE TF-2: 6.3.2.15	
R[0..1]	Anterior segment	1.3.6.1.4.1.19376.1.12.1.2.17	EYECARE TF-2: 6.3.2.16	
R[0..1]	Posterior segment	1.3.6.1.4.1.19376.1.12.1.2.18	EYECARE TF-2: 6.3.2.17	
R[0..1]	Ancillary Testing	1.3.6.1.4.1.19376.1.12.1.2.19	EYECARE TF-2: 6.3.2.19	

6.3.2.6.1 Parent Template

The parent of this template is Eyes “1.3.6.1.4.1.19376.1.5.3.1.1.9.19”.

Example XML Code

```

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.5.3.1.1.9.19' />
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.6' />
    <id root=' ' extension=' ' />
    <code code='10197-2' displayName='Physical finding of Eye'
          codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC' />
    <text>
      Text as described above
    </text>
    <component>
      <section>
        :
        <!-- Required if known Visual Acuity -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.2.7' />
        :
        <section>
        <component>

      <component>
        <section>
          :
          <!-- Required if known Vision Testing -->
          <templateId root='1.3.6.1.4.1.19376.1.12.1.2.8' />
          :
          <section>
        <component>

      <component>
        <section>
          :
          <!-- Required if known Refractive Measurements -->
          <templateId root='1.3.6.1.4.1.19376.1.12.1.2.9' />
          :
          <section>
        <component>

      <component>
        <section>
          :
          <!-- Required if known Lensometry Measurement -->
          <templateId root='1.3.6.1.4.1.19376.1.12.1.2.10' />
          :
          <section>
        <component>

      <component>

```

```
<section>
:
<!-- Required if known Intraocular Pressure -->
<templateId root='1.3.6.1.4.1.19376.1.12.1.2.11' />
:
<component>
<section>

<component>
<section>
:
<!-- Required if known Confrontation Visual Field -->
<templateId root='1.3.6.1.4.1.19376.1.12.1.2.12' />
:
<section>
<component>

<component>
<section>
:
<!-- Required if known Eye External -->
<templateId root='1.3.6.1.4.1.19376.1.12.1.2.13' />
:
<section>
<component>

<component>
<section>
:
<!-- Required if known Lacrimal -->
<templateId root='1.3.6.1.4.1.19376.1.12.1.2.14' />
:
<section>
<component>

<component>
<section>
:
<!-- Required if known Pupils -->
<templateId root='1.3.6.1.4.1.19376.1.12.1.2.15' />
:
<section>
<component>

<component>
<section>
:
<!-- Required if known Ocular alignment and motility -->
<templateId root='1.3.6.1.4.1.19376.1.12.1.2.16' />
:
<section>
<component>

<component>
<section>
:
<!-- Required if known Anterior Segment -->
<templateId root='1.3.6.1.4.1.19376.1.12.1.2.17' />
:
<section>
<component>

<component>
<section>
:
<!-- Required if known Posterior Segment -->
<templateId root='1.3.6.1.4.1.19376.1.12.1.2.18' />
```



```

:
<section>
<component>

<component>
<section>
:
<!-- Required if known Ancillary Testing -->
<templateId root='1.3.6.1.4.1.19376.1.12.1.2.19' />
:
<section>
<component>

</section>
</component>

```

6.3.2.7 Vision Testing 1.3.6.1.4.1.19376.1.12.1.2.8

Template ID	1.3.6.1.4.1.19376.1.12.1.2.8			
Parent Template				
General Description	The vision section shall contain a description of any type of vision testing excluding visual acuity and visual field.			
Section Code	70936-0, LOINC, “Vision testing”			
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Entries				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.3.1	EYECARE TF-2: 6.3.3.1	

Example XML Code

```

<component>
<section>
<templateId root='1.3.6.1.4.1.19376.1.12.1.2.8' />
<id root=' ' extension=' ' />
<code code='70936-0' displayName='Vision testing'
codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC' />
<text>
Text as described above
</text>
<entry>
:
<!-- Required Ocular Observation -->
<templateId root='1.3.6.1.4.1.19376.1.12.1.3.1' />
:
</entry>

</section>
</component>

```

6.3.2.7.1 Vision Testing Constraints

This section specifies the constraint requirements for the Vision Testing content module section.

6.3.2.7.1.1 <code code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. A vision testing ocular observation entry SHALL use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observable entity that is the basis for the observation.
2. The following codes are provided to express the scope of this template; additional vision testing based SNOMED CT Observable Entity codes MAY be used.

observation/code	Data Type
271726001, SNOMED CT, Color vision	ST
251686008, SNOMED-CT, Contrast sensitivity	ST
359750002, SNOMED-CT, Stereoscopic acuity	ST
78513008, SNOMED-CT, Fusion binocular vision	ST

6.3.2.7.1.2 <methodCode code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. The methodCode element SHALL be used to record the specific method used to make an observation.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used for method codes; however, other code sets MAY be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
7510005	Color vision examination (procedure)
410566008	Contrast sensitivity test (procedure)
421635003	Stereo fly testing
252853008	Stereotests (procedure)
396187005	Diplopia test (procedure)
-----	-----

6.3.2.7.1.3 <interpretationCode code=' ' codeSystem=' ' codeSystemName=' ' />

1. If there is an interpretation that can be performed using an observation result (e.g., high, borderline, normal, low), these MAY be recorded within the interpretationCode element.

- The SNOMED CT Clinical Findings hierarchy (404684003) SHOULD be used for interpretation codes, however, other code sets MAY be used, if desired (e.g., ICD-10).

The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
23289000	Abnormal color vision
163968004	On examination - color vision normal
32919003	Fusion with defective stereopsis
24982008	Diplopia
.....

6.3.2.8 Visual Acuity 1.3.6.1.4.1.19376.1.12.1.2.7

Template ID	1.3.6.1.4.1.19376.1.12.1.2.7			
Parent Template				
General Description	The visual acuity section shall contain a description of any type of visual acuity exam.			
Section Code	70937-8, LOINC, “Visual acuity”			
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Entries				
R[0..*]	Visual Acuity Measurements Organizer	1.3.6.1.4.1.19376.1.12.1.3.2	EYECARE TF-2: 6.3.3.2	

Example XML Code

```

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.7' />
    <id root=' ' extension=' ' />
    <code code='70937-8' displayName='Visual acuity'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC' />
    <text>
      Text as described above
    </text>
    <entry>
      :
      <!-- Required if known Visual Acuity Measurements Organizer -->
      <templateId root='1.3.6.1.4.1.19376.1.12.1.3.2' />
      :
    </entry>
  </section>
</component>

```

6.3.2.9 Refractive Measurements 1.3.6.1.4.1.19376.1.12.1.2.9

Template ID	1.3.6.1.4.1.19376.1.12.1.2.9			
Parent Template				
General Description	The refractive measurements section shall contain a description of any type of refractive measurement.			
Section Code	70938-6, LOINC, “Refractive measurements”			
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Entries				
R[1..*]	Refractive Measurements Organizer	1.3.6.1.4.1.19376.1.12.1.3.3	EYECARE TF-2: 6.3.3.4	
R[0..*]	Visual Acuity Measurements Organizer	1.3.6.1.4.1.19376.1.12.1.3.2	EYECARE TF-2: 6.3.3.2	
R[0..*]	Keratometry Measurements Organizer	1.3.6.1.4.1.19376.1.12.1.3.4	EYECARE TF-2: 6.3.3.6	
O[0..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.3.1	EYECARE TF-2: 6.3.3.1	

Example XML Code

```

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.9' />
    <id root=' ' extension=' ' />
    <code code='70938-6' displayName='Refractive measurements'
          codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC' />
    <text>
      Text as described above
    </text>
    <entry>
      :
      <!-- Required Refractive Measurements Organizer -->
      <templateId root='1.3.6.1.4.1.19376.1.12.1.3.3' />
      :
    </entry>
    <entry>
      :
      <!-- Required if known Visual Acuity Measurements Organizer -->
      <templateId root='1.3.6.1.4.1.19376.1.12.1.3.2' />
      :
    </entry>
    <entry>
      :
      <!-- Required if known Keratometry Measurements Organizer -->
      <templateId root='1.3.6.1.4.1.19376.1.12.1.3.4' />
      :
    </entry>
    <entry>
      :
      <!-- Optional Ocular Observation -->
      <templateId root='1.3.6.1.4.1.19376.1.12.1.3.1' />
      :
    </entry>
  </section>
</component>

```

```
</section>
</component>
```

6.3.2.10 Lensometry Measurements 1.3.6.1.4.1.19376.1.12.1.2.10

Template ID	1.3.6.1.4.1.19376.1.12.1.2.10			
Parent Template				
General Description	The lensometry measurements section shall contain a description of any lensometry measurement.			
Section Code	70939-4, LOINC, “Lensometry measurements”			
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Entries				
R[1..*]	Lensometry Measurements Organizer	1.3.6.1.4.1.19376.1.12.1.3.5	EYECARE TF-3:6.3.3.8	

Example XML Code

```
<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.10' />
    <id root=' ' extension=' ' />
    <code code='70939-4' displayName='Lensometry measurements'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC' />
    <text>
      Text as described above
    </text>
    <entry>
      :
      <!-- Required Lensometry Measurements Organizer -->
      <templateId root='1.3.6.1.4.1.19376.1.12.1.3.5' />
      :
    </entry>
  </section>
</component>
```

6.3.2.11 Intraocular Pressure 1.3.6.1.4.1.19376.1.12.1.2.11

Template ID	1.3.6.1.4.1.19376.1.12.1.2.11			
Parent Template				
General Description	The intraocular pressure section shall contain a description of any type of intraocular pressure measurement.			
Section Code	56844-4, LOINC, “Intraocular pressure of the eye”			
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Entries				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.3.1	EYECARE TF-2:6.3.3.1	

Example XML Code

```

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.11' />
    <id root=' ' extension=' ' />
    <code code='56844-4' displayName='Intraocular pressure of the eye'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC' />
    <text>
      Text as described above
    </text>
    <entry>
      :
      <!-- Required Ocular Observation -->
      <templateId root='1.3.6.1.4.1.19376.1.12.1.3.1' />
      :
    </entry>
  </section>
</component>

```

6.3.2.11.1 Intraocular Pressure Constraints

This section specifies the constraint requirements for the Intraocular Pressure content module section.

6.3.2.11.1.1 <code code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. An intraocular pressure ocular observation entry SHALL use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation.
2. The following code is provided to express the scope of this template; additional intraocular pressure based SNOMED CT Observable Entity codes MAY be used.

observation/code	Data Type	Unit of Measure
41633001, SNOMED-CT, Intraocular pressure	PQ	mm[Hg]

6.3.2.11.1.2 <methodCode code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. The methodCode element SHALL be used to record the specific method used to make an observation.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used for method codes; however, other code sets MAY be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
389152008	Goldmann applanation tonometry
389149000	Schiotz tonometry
-----	-----

6.3.2.11.1.3 <interpretationCode code=' ' codeSystem=' ' codeSystemName=' '/>

1. If there is an interpretation that can be performed using an observation result (e.g., high, borderline, normal, low), these MAY be recorded within the interpretationCode element.
2. The SNOMED CT Clinical Findings hierarchy (404684003) SHOULD be used for interpretation codes, however, other code sets MAY be used, if desired (e.g., ICD-10).

The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
23670006	Decreased intraocular pressure
60280003	Normal intraocular pressure
112222000	Raised intraocular pressure
.....

6.3.2.12 Confrontation Visual Field 1.3.6.1.4.1.19376.1.12.1.2.12

Template ID	1.3.6.1.4.1.19376.1.12.1.2.12			
Parent Template				
General Description	The confrontation visual field section shall contain a description of any type of confrontation visual field exam.			
Section Code	70940-2, LOINC, “Confrontation visual field”			
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Entries				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.3.1	EYECARE TF-2: 6.3.3.1	

Example XML Code

```

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.12' />
    <id root=' ' extension=' ' />
    <code code='70940-2' displayName='Confrontation visual field'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC' />
    <text>
      Text as described above
    </text>
    <entry>
      :
      <!-- Required Ocular Observation -->
      <templateId root='1.3.6.1.4.1.19376.1.12.1.3.1' />
      :
    </entry>
  </section>
</component>

```

6.3.2.12.1 Confrontation Visual Field Constraints

This section specifies the constraint requirements for the Confrontation Visual Field content module section.

6.3.2.12.1.1 <code code=' ' codeSystem='16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. A confrontation visual field ocular observation entry SHALL use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation.
2. The following code is provided to express the scope of this template; additional confrontation visual field based SNOMED CT Observable Entity codes MAY be used.

observation/code	Data Type
421640006, SNOMED-CT, Confrontation visual field	ST

6.3.2.12.1.2 <methodCode code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. The methodCode element SHALL be used to record the specific method used to make an observation.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used for method codes; however, other code sets MAY be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
410560002	Confrontation visual field test

Code Value	Code Description
-----	-----

6.3.2.12.1.3 <interpretationCode code=' ' codeSystem=' ' codeSystemName=' '/>

1. If there is an interpretation that can be performed using an observation result (e.g., high, borderline, normal, low), these MAY be recorded within the interpretationCode element.
2. The SNOMED CT Clinical Findings hierarchy (404684003) SHOULD be used for interpretation codes, however, other code sets MAY be used, if desired (e.g., ICD-10).

The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
164002009	On examination - visual fields normal
421096000	Full to confrontation visual fields
-----	-----

6.3.2.13 Eye External 1.3.6.1.4.1.19376.1.12.1.2.13

Template ID		1.3.6.1.4.1.19376.1.12.1.2.13		
Parent Template				
General Description		An examination of ocular adnexal structures, orbits and pertinent facial structures.		
Section Code		70941-0, LOINC, "Eye external"		
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Entries				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.3.1	EYECARE TF-2: 6.3.3.1	

Example XML Code

```

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.13' />
    <id root=' ' extension=' ' />
    <code code='70941-0' displayName='Eye external'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC' />
    <text>
      Text as described above
    </text>
    <entry>
      :
      <!-- Required Ocular Observation -->
      <templateId root='1.3.6.1.4.1.19376.1.12.1.3.1' />
      :
    </entry>
  </section>
</component>

```

6.3.2.13.1 Eye External Constraints

This section specifies the constraint requirements for the Eye External content module section.

6.3.2.13.1.1 <code code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. An eye external ocular observation entry SHALL use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation.
2. The following codes are provided to express the scope of this template; additional eye external based SNOMED CT Observable Entity codes MAY be used.

observation/code	Data Type
363929009, SNOMED CT, Eyelid observable	ST
421261009, SNOMED-CT, Eyelash observable	ST
363935009, SNOMED-CT, Globe observable	ST
366636003, SNOMED-CT, Facial appearance finding	ST

6.3.2.13.1.2 <methodCode code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. The methodCode element SHALL be used to record the specific method used to make an observation.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used for method codes; however, other code sets MAY be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
424391002	Exophthalmometry
32750006	Inspection
-----	-----

6.3.2.13.1.3 <interpretationCode code=' ' codeSystem=' ' codeSystemName=' '/>

1. If there is an interpretation that can be performed using an observation result (e.g., high, borderline, normal, low), these MAY be recorded within the interpretationCode element.
2. The SNOMED CT Clinical Findings hierarchy (404684003) SHOULD be used for interpretation codes, however, other code sets MAY be used, if desired (e.g., ICD-10).

The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
14520009	Lid retraction
84893000	Lid lag
.....

6.3.2.14 Pupils 1.3.6.1.4.1.19376.1.12.1.2.15

Template ID	1.3.6.1.4.1.19376.1.12.1.2.15			
Parent Template				
General Description	The pupils section shall contain a description of any type of pupil exam.			
Section Code	32466-5, LOINC, “Physical findings pupils”			
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Entries				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.3.1	EYECARE TF-2: 6.3.3.1	

Example XML Code

```

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.15' />
    <id root=' ' extension=' ' />
    <code code='32466-5' displayName='Physical findings pupils'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC' />
    <text>
      Text as described above
    </text>
    <entry>
      :
      <!-- Required Ocular Observation -->
      <templateId root='1.3.6.1.4.1.19376.1.12.1.3.1' />
      :
    </entry>
  </section>
</component>

```

6.3.2.14.1 Pupils Constraints

This section specifies the constraint requirements for the Pupils content module section.

6.3.2.14.1.1 <code code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. A pupil ocular observation entry SHALL use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation.
2. The following codes are provided to express the scope of this template; additional pupil based SNOMED CT Observable Entity codes MAY be used.

observation/code	Data Type	Unit of Measure
363953003, SNOMED CT, Size of pupil	PQ	mm
363954009, SNOMED-CT, Pupil shape	ST	
363955005, SNOMED-CT, Equality of pupils	ST	
113147002, SNOMED-CT, Pupil reaction to light	ST	

6.3.2.14.1.2 <methodCode code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. The methodCode element SHALL be used to record the specific method used to make an observation.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used for method codes; however, other code sets MAY be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
32750006	Inspection
122869004	Measurement
-----	-----

- The methodCode uses a code with qualifiers (HL7 CD data type), therefore multiple codes MAY be included as qualifiers.

For example when using observation code 113147002, “Pupil reaction to light” methodCode 122869004, “Measurements” could be conveyed with a qualifier code of 255541007, “Indirect”.

6.3.2.14.1.3 <interpretationCode code=' ' codeSystem=' ' codeSystemName=' '/>

- If there is an interpretation that can be performed using an observation result (e.g., high, borderline, normal, low), these MAY be recorded within the interpretationCode element.
- The SNOMED CT Clinical Findings hierarchy (404684003) SHOULD be used for interpretation codes, however, other code sets MAY be used, if desired (e.g., ICD-10).

The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
232121005	Afferent pupillary defect
386667005	Pupils equal, react to light and accommodation
418970005	Pupil equal round and reacting to light

6.3.2.15 Ocular Alignment and Motility 1.3.6.1.4.1.19376.1.12.1.2.16

Template ID	1.3.6.1.4.1.19376.1.12.1.2.16			
Parent Template				
General Description	The ocular alignment and motility section shall contain a description of any type of ocular alignment or motility exam.			
Section Code	70942-8, LOINC, “Ocular alignment and motility”			
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Entries				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.3.1	EYECARE TF-2: 6.3.3.1	

Example XML Code

```

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.16' />
    <id root=' ' extension=' ' />
    <code code='70942-8' displayName='Ocular alignment and motility'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC' />
    <text>
      Text as described above
    </text>
    <entry>
      :
      <!-- Required Ocular Observation -->
      <templateId root='1.3.6.1.4.1.19376.1.12.1.3.1' />
      :
    </entry>
  </section>
</component>

```

6.3.2.15.1 Ocular Alignment and Motility Constraints

This section specifies the constraint requirements for the Ocular Alignment and Motility content module section.

6.3.2.15.1.1 <code code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. An ocular alignment and motility observation entry SHALL use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation.
2. The following codes are provided to express the scope of this template; additional ocular alignment and motility based SNOMED CT Observable Entity codes MAY be used.

observation/code	Data Type
251781009, SNOMED CT, AC/A-Accommodation Convergence/Accommodation Ratio	ST
313088003, SNOMED-CT, Ocular muscle balance	ST
31763002, SNOMED-CT, Ocular motility observable	ST
400927000, SNOMED-CT, Fusional vergence, function	ST

6.3.2.15.1.2 <methodCode code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. The methodCode element SHALL be used to record the specific method used to make an observation.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used for method codes; however, other code sets MAY be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
400919009	Alternate cover test
252874009	Krimsky test
-----	-----

6.3.2.15.1.3 <interpretationCode code=' ' codeSystem=' ' codeSystemName=' '/>

1. If there is an interpretation that can be performed using an observation result (e.g., high, borderline, normal, low), these MAY be recorded within the interpretationCode element.
2. The SNOMED CT Clinical Findings hierarchy (404684003) SHOULD be used for interpretation codes, however, other code sets MAY be used, if desired (e.g., ICD-10).

The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
164045002	On examination - eye movements normal
419825008	Limited leftward eye movement
.....

6.3.2.16 Anterior Segment 1.3.6.1.4.1.19376.1.12.1.2.17

Template ID	1.3.6.1.4.1.19376.1.12.1.2.17			
Parent Template				
General Description	The anterior segment section shall contain a description of any type of biomicroscopic examination of the anterior segment.			
Section Code	70943-6, LOINC, “Eye anterior segment”			
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Entries				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.3.1	EYECARE TF-2: 6.3.3.1	

Example XML Code

```

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.17' />
    <id root=' ' extension=' ' />
    <code code='70943-6' displayName='Eye anterior segment'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC' />
    <text>
      Text as described above
    </text>
    <entry>
      :
      <!-- Required Ocular Observation -->
      <templateId root='1.3.6.1.4.1.19376.1.12.1.3.1' />
      :
    </entry>
  </section>
</component>

```

6.3.2.16.1 Anterior Segment Constraints

This section specifies the constraint requirements for the Anterior Segment content module section.

6.3.2.16.1.1 <code code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. An anterior segment ocular observation entry SHALL use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation.
2. The following codes are provided to express the scope of this template; additional anterior segment based SNOMED CT Observable Entity codes MAY be used.

observation/code	Data Type	Unit of Measure
420160007, SNOMED-CT, Ocular tear film observable	ST	
251693007, SNOMED-CT, Tear film break-up time	ST or PQ	s
363940001, SNOMED-CT, Conjunctival observable	ST	
363964000, SNOMED-CT, Anterior sclera feature	ST	
363943004, SNOMED-CT, Cornea observable	ST	
363946007, SNOMED-CT, Anterior chamber observable	ST	
363956006, SNOMED-CT, Iris observable	ST	
363959004, SNOMED-CT, Crystalline lens observable	ST	
3363965004, SNOMED-CT, Vitreous cavity observable	ST	

observation/code	Data Type	Unit of Measure
363949000, SNOMED-CT, Observable of angle of anterior chamber	ST	

**6.3.2.16.1.2 <methodCode code=' ' codeSystem='2.16.840.1.113883.6.96'
codeSystemName='SNOMED CT' />**

1. The methodCode element SHALL be used to record the specific method used to make an observation.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used for method codes; however, other code sets MAY be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
398891008	Slit lamp biomicroscopy
76949005	Gonioscopy
414273009	Fluorescein staining of eye
-----	-----

6.3.2.16.1.3 <interpretationCode code=' ' codeSystem=' ' codeSystemName=' '/>

1. If there is an interpretation that can be performed using an observation result (e.g., high, borderline, normal, low), these MAY be recorded within the interpretationCode element.
2. The SNOMED CT Clinical Findings hierarchy (404684003) SHOULD be used for interpretation codes, however, other code sets MAY be used, if desired (e.g., ICD-10).

The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
301926003	Conjunctiva normal
301928002	Central corneal epithelial staining pattern
301929005	Peripheral corneal epithelial staining pattern
301936006	Anterior chamber of eye normal
314016000	Age-related lens opacity
370952005	Decreased tear film break-up
-----	-----

6.3.2.17 Posterior Segment 1.3.6.1.4.1.19376.1.12.1.2.18

Template ID	1.3.6.1.4.1.19376.1.12.1.2.18			
Parent Template				
General Description	The posterior segment section shall contain a description of any type of posterior segment exam.			
Section Code	79044-4, LOINC, “Eye posterior segment”			
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Entries				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.3.1	EYECARE TF-2: 6.3.3.1	

Example XML Code

```

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.18' />
    <id root=' ' extension=' ' />
    <code code='70944-4' displayName='Eye posterior segment'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC' />
    <text>
      Text as described above
    </text>
    <entry>
      :
      <!-- Required Ocular Observation -->
      <templateId root='1.3.6.1.4.1.19376.1.12.1.3.1' />
      :
    </entry>
  </section>
</component>

```

6.3.2.17.1 Posterior Segment Constraints

This section specifies the constraint requirements for the Posterior content module section.

6.3.2.17.1.1 <code code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. A posterior segment ocular observation entry shall use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation.
2. The following codes are provided to express the scope of this template; additional posterior segment based SNOMED CT Observable Entity codes may be used.

observation/code	Data Type
363965004, SNOMED CT, Vitreous cavity observable	ST
363971005, SNOMED-CT, Optic disc observable	ST
Code been requested,	ST

observation/code	Data Type
SNOMED-CT, Macula observable	
363968002, SNOMED-CT, Retina vessel feature	ST
363967007, SNOMED-CT, Retina/choroid observable	ST

6.3.2.17.1.2 <methodCode code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. The methodCode element SHALL be used to record the specific method used to make an observation.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used for method codes; however, other code sets MAY be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
410453006	Binocular indirect ophthalmoscopy
410455004	Slit-lamp fundus examination
-----	-----

6.3.2.17.1.3 <interpretationCode code=' ' codeSystem=' ' codeSystemName=' ' />

1. If there is an interpretation that can be performed using an observation result (e.g., high, borderline, normal, low), these MAY be recorded within the interpretationCode element.
2. The SNOMED CT Clinical Findings hierarchy (404684003) SHOULD be used for interpretation codes, however, other code sets MAY be used, if desired (e.g., ICD-10).

The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
169372000	On examination optic disc normal
163979009	On examination – optic disc cupped
163983009	On examination – retina normal
-----	-----

6.3.2.18 Lacrimal 1.3.6.1.4.1.19376.1.12.1.2.14

Template ID		1.3.6.1.4.1.19376.1.12.1.2.14		
Parent Template				
General Description		An examination of lacrimal structure and function.		
Section Code		70945-1, LOINC, “Lacrimal”		
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Entries				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.3.1	EYECARE TF-2: 6.3.3.1	

Example XML Code

```

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.14' />
    <id root=' ' extension=' ' />
    <code code='70945-1' displayName='Lacrimal'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC' />
    <text>
      Text as described above
    </text>
    <entry>
      :
      <!-- Required Ocular Observation -->
      <templateId root='1.3.6.1.4.1.19376.1.12.1.3.1' />
      :
    </entry>
  </section>
</component>

```

6.3.2.18.1 Lacrimal Constraints

This section specifies the constraint requirements for the Lacrimal content module section.

6.3.2.18.1.1 <code code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. A lacrimal ocular observation entry SHALL use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation.
2. The following codes are provided to express the scope of this template; additional lacrimal based SNOMED CT Observable Entity codes MAY be used.

observation/code	Data Type
417323003, SNOMED CT, Lacrimal drainage system	ST
64702000, SNOMED-CT, Tear production, function	ST
251693007, SNOMED-CT,	ST

observation/code	Data Type
Tear film break-up time	

6.3.2.18.1.2 <methodCode code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. The methodCode element SHALL be used to record the specific method used to make an observation.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used for method codes; however, other code sets MAY be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
164742009	Schirmers test
419279005	Jones dye test
417997000	Fluorescein dye disappearance test
-----	-----

6.3.2.18.1.3 <interpretationCode code=' ' codeSystem=' ' codeSystemName=' '/>

1. If there is an interpretation that can be performed using an observation result (e.g., high, borderline, normal, low), these MAY be recorded within the interpretationCode element.
2. The SNOMED CT Clinical Findings hierarchy (404684003) SHOULD be used for interpretation codes, however, other code sets MAY be used, if desired (e.g., ICD-10).

The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
251700007	Lacrimal drainage – not patent
370952005	Decreased tear film break-up
-----	-----

6.3.2.19 Ancillary Testing 1.3.6.1.4.1.19376.1.12.1.2.19

Template ID	1.3.6.1.4.1.19376.1.12.1.2.19			
Parent Template				
General Description	The ancillary testing section shall contain a description of ancillary eye exams			
Section Code	70946-9, LOINC, “Ancillary eye tests”			
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Subsections				
O[0..1]	DICOM Object Catalog	1.3.6.1.4.1.19376.1.4.1.2.15	CARD TF-2	
O[0..1]	Key Images	1.3.6.1.4.1.19376.1.4.1.2.14	CARD TF-2	

Example XML Code

```

<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.19' />
    <id root=' ' extension=' ' />
    <code code='70946-9' displayName='Ancillary eye tests'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC' />
    <text>
      Text as described above
    </text>
    <entry>
      :
      <!-- Optional DICOM Object Catalog -->
      <templateId root='1.3.6.1.4.1.19376.1.4.1.2.15' />
      :
    </entry>
    <entry>
      :
      <!-- Optional Key Images -->
      <templateId root='1.3.6.1.4.1.19376.1.4.1.2.14' />
      :
    </entry>
  </section>
</component>

```

6.3.3 CDA Entry Content Modules

Add section 6.3.3.x

6.3.3.1 Ocular Observation 1.3.6.1.4.1.19376.1.12.1.3.1

The ocular observation entry is meant to be an abstract representation of many of the ocular observations used in this specification. It can be made concrete by the specification of a few additional constraints, namely the vocabulary used for codes, and the value representation.

6.3.3.1.1 Specification

```
<observation classCode='OBS' moodCode='EVN'>
  <templateId root='1.3.6.1.4.1.19376.1.12.1.3.1' />
  <id root=' ' extension=' ' />
  <code code=' ' displayName=' ' codeSystem=' ' codeSystemName=' ' />
  <!-- for CDA -->
  <text><reference value='#xxx' /></text>
  <statusCode code='completed' />
  <effectiveTime value=' ' />
  <repeatNumber value=' ' />
  <value xsi:type=' ' ... />
  <interpretationCode code=' ' codeSystem=' ' codeSystemName=' ' />
  <methodCode code=' ' codeSystem=' ' codeSystemName=' ' />
  <targetSiteCode code=' ' codeSystem=' ' codeSystemName=' ' />
  <author typeCode='AUT'>
    <assignedAuthor typeCode='ASSIGNED'><id ... /></assignedAuthor> <!-- for CDA -->
    <!-- For HL7 Version 3 Messages
    <assignedEntity typeCode='ASSIGNED'>
      <Person classCode='PSN'>
        <determinerCode root=' ' />
        <name>...</name>
      </Person>
    </assignedEntity>
  </author>
</observation>
```

6.3.3.1.2 <observation classCode='OBS' moodCode='EVN'>

1. These acts are ocular observations that have occurred, and SHALL be recorded using the <observation> element as shown above.

6.3.3.1.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.3.1' />

1. The <templateId> element identifies this <observation> as an ocular observation, allowing for validation of the content. The templateId SHALL appear as shown above.

6.3.3.1.4 <id root=' ' extension=' ' />

1. Each observation SHALL have an identifier.

6.3.3.1.5 <code code=' ' displayName=' ' codeSystem=' ' codeSystemName=' ' />

1. Observations SHALL have a code describing what was measured.

The code system used is determined by the vocabulary constraints on the types of measurements that might be recorded in a section. Content modules that are derived from the Ocular Observation content module may restrict the code system and code values used for the observation.

6.3.3.1.6 <text><reference value='#xxx' /></text> -OR- <text>text</text>

1. Each observation measurement entry MAY contain a <text> element providing the free text that provides the same information as the observation within the narrative portion of the document with a <text> element.
2. For CDA based uses of Ocular Observations, this element SHALL be present, and SHALL contain a <reference> element that points to the related string in the narrative portion of the document.
3. For HL7 Version 3 based uses, the <text> element MAY be included.

6.3.3.1.7 <statusCode code='completed' />

1. The status code of all observations SHALL be completed.

6.3.3.1.8 <effectiveTime value=' ' />

1. The <effectiveTime> element SHALL be present in standalone observations and SHALL record the date and time when the measurement was taken.
2. The <effectiveTime> element SHALL be precise to at least the day.

6.3.3.1.9 <value xsi:type=' ' ... />

1. The value of the observation SHALL be recorded using a data type appropriate to the observation.

Content modules derived from the Ocular Observation content module may restrict the allowable data types used for the observation.

6.3.4.1.10 <interpretationCode code=' ' codeSystem=' ' codeSystemName=' ' />

1. If there is an interpretation that can be performed using an observation result (e.g., high, borderline, normal, low), these MAY be recorded within the interpretationCode element.

6.3.3.1.11 <methodCode code=' ' codeSystem=' ' codeSystemName=' ' />

1. The methodCode element SHALL be used to record the specific method used to make an observation when this information is not already pre-coordinated with the observation code.

6.3.3.1.12 <targetSiteCode code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. The targetSiteCode SHALL be used to record the target site where an observation is made when this information is not already pre-coordinated with the observation code.
2. An Ocular Observation SHALL use one of the following SNOMED CT Anatomical Structure (91723000) codes.

Code Value	Description
362503005	Entire left eye
362502000	Entire right eye
362508001	Both eyes, entire

3. Additional qualifier codes MAY be conveyed to further clarify the target site.
For example, SNOMED CT codes to state concepts such as 64217000, SNOMED-CT, Superior, 261089000, SNOMED CT, Inferior, etc.

6.3.3.1.13 <author><assignedAuthor classCode='ASSIGNED'>...<assignedAuthor></author>

In CDA uses, Ocular Observations are assumed to be authored by the same author as the document through context conduction.

1. Specific authorship of observation MAY be represented by listing the author in the header and referencing the author in a <author> relationship.
2. If authors are explicitly listed in documents, an <id> element SHOULD reference the ID of the author in the header through an assignedAuthor Role.
3. If the author of the observation is not an author of the document the <person> object including a name and ID SHALL be included.
4. For HL7 Version 3 purposes, the <author> element SHOULD be present unless it can be determined by conduction from organizers or higher level structures.
5. When used for HL7 Version 3, the role element name is <assignedEntity> and the author SHALL be represented as an <assignedPerson> element.

6.3.3.2 Visual Acuity Measurements Organizer 1.3.6.1.4.1.19376.1.12.1.3.2

A Visual Acuity Measurements Organizer collects the observations for a single visual acuity measurement.

6.3.3.2.1 Specification

```

<organizer classCode='CLUSTER' moodCode='EVN'>
  <templateId root='1.3.6.1.4.1.19376.1.12.1.3.2' />
  <id root='' extension='' />
  <code code='260246004' displayName='Visual Acuity Finding'
    codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' /> <statusCode
code='completed' />
  <effectiveTime value='' />
  <targetSiteCode code='' codeSystem='' codeSystemName='' />
  <!--method code
  <methodCode code='' codeSystem='' codeSystemName='' />
  <!-- For HL7 Version 3 Messages
  <author classCode='AUT'>
    <assignedEntity1 typeCode='ASSIGNED'>
      :
    <assignedEntity1>
  </author>
  -->
  <!-- one or more visual acuity observations -->
  <component typeCode='COMP'>
    <observation classCode='OBS' moodCode='EVN'>
      <templateId root='1.3.6.1.4.1.19376.1.12.1.3.6' />
      :
    </observation>
  </component>
</organizer>

```

6.3.3.2.2 <organizer classCode='CLUSTER' moodCode='EVN'>

1. The visual acuity measurement organizer SHALL be a cluster of visual acuity measurements observations.

6.3.3.2.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.3.2' />

1. The visual acuity measurement organizer SHALL have the <templateId> elements shown above to indicate the constraints of this specification.

6.3.3.2.4 <id root='' extension='' />

1. The organizer SHALL have an <id> element.

6.3.3.2.5 <code code='260246004' displayName='Visual Acuity Finding' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. The <code> element SHALL be recorded as shown above to indicate that this organizer captures information about patient visual acuity measurements.

6.3.3.2.6 <targetSiteCode code='' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. The targetSiteCode SHALL be used to record which eye or that both eyes are being observed by this organizer.
2. The targetSiteCode SHALL use one of the following SNOMED CT Anatomical Structure (91723000) codes.

Code Value	Code Description
362503005	Entire left eye
362502000	Entire right eye
362508001	Both eyes. entire

6.3.3.2.7 <methodCode code=' ' codeSystem=' ' codeSystemName=' '/>

1. The methodCode element SHALL be used to record the specific method used to make a measurement.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used for method codes; however, other code sets May be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
252973004	Snellen chart assessment
400909003	Allen picture test
.....

6.3.3.2.8 <statusCode code='completed'/>

1. The status code of all organizers SHALL be completed.

6.3.3.2.9 <effectiveTime value=' '/>

1. The effective time element SHALL be present to indicate when the measurement was taken.
2. The <effectiveTime> element SHALL be precise to at least the day.

6.3.3.2.10 <author typeCode='AUT'><assignedEntity1 typeCode='ASSIGNED'>...</assignedEntity1></author>

1. For use with HL7 Version 3, Visual Acuity Measurements organizers SHALL contain an <author> element to represent the person or device.

**6.3.3.2.11 <!-- one or more visual acuity measurements observations -->
<component typeCode='COMP'>**

1. The organizer SHALL have one or more <component> elements that are <observation> elements using the Visual Acuity Measurement Observation template.

6.3.3.3 Visual Acuity Measurement Observations 1.3.6.1.4.1.19376.1.12.1.3.6

The visual acuity measurements observation entry is meant to be an abstract representation of the visual acuity measurements observations used in this specification. It can be made concrete by

the specification of a few additional constraints, namely the vocabulary used for codes, and the value representation.

6.3.3.3.1 Specification

Example XML Code

```
<observation classCode='OBS' moodCode='EVN'>
  <templateId root='1.3.6.1.4.1.19376.1.12.1.3.6' />
  <id root='' extension='' />
  <code code='' displayName='' codeSystem='' codeSystemName='' />
  <!-- for CDA -->
  <text><reference value='#xxx' /></text>
  <statusCode code='completed' />
  <effectiveTime value='' />
  <repeatNumber value='' />
  <value xsi:type='' ... />
  <author typeCode='AUT'>
    <assignedAuthor typeCode='ASSIGNED'><id ... /></assignedAuthor> <!-- for CDA -->
    <!-- For HL7 Version 3 Messages
    <assignedEntity typeCode='ASSIGNED'>
      <Person classCode='PSN'>
        <determinerCode root=''>
          <name>...</name>
        </Person>
      <assignedEntity>
        -->
    </author>
  </observation>
```

6.3.3.3.2 <observation classCode='OBS' moodCode='EVN'>

1. These acts are visual acuity observations that have occurred, and SHALL be recorded using the <observation> element as shown above.

6.3.3.3.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.3.6' />

1. The <templateId> element identifies this <observation> as visual acuity measurements observation, allowing for validation of the content. The templateId SHALL appear as shown above.

6.3.3.3.4 <id root=' ' extension=' ' />

1. Each observation SHALL have an identifier.

6.3.3.3.5 <code code=' ' displayName=' ' codeSystem=' ' codeSystemName=' ' />

1. A visual acuity measurements observation entry SHALL use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation.
2. The following codes are provided to express the scope of this template; additional SNOMED CT Observable Entity codes MAY be used.

Opt	observation/code	Data Type	Unit of Measure	Value Set
R[1..1]	363983007, SNOMED CT,	CD		DICOM Visual Acuity Type

Opt	observation/code	Data Type	Unit of Measure	Value Set
	Visual Acuity with qualifier			or SNOMED CT Observable Entity hierarchy (363787002) Value set - see section 6.3.3.3.5.1 Qualifier = Viewing Distance Type, see section 6.3.3.3.5.1
C* [0..1]	363983007, SNOMED CT, Visual Acuity	CD		SNOMED CT Visual Acuity Clinical Findings (260246004) e.g. 163951003, On examination-visual acuity L-eye = 6/6; 422256009, SNOMED-CT, Count Fingers-distance vision
C* [0..1]	363983007, SNOMED CT, Visual Acuity	REAL	No Unit	
C* [0..1]	363983007, SNOMED CT, Visual Acuity	ST		Note: this should not be used as the default method for providing visual acuity but is intended for the rare circumstances where coded data is not available
O [0..1]	Code been requested, SNOMED CT, Letters Missed	INT	No Unit	
O [0..1]	Code been requested, SNOMED CT, Additional Letters Seen	INT	No Unit	
O [0..1]	252124009, SNOMED-CT, Test Distance	REAL	Ft, inch, m, cm	

3. *One and only one of the C* Visual Acuity observations listed in the table SHALL be present. If a valid code value for Visual Acuity (using the data type of CD) pertains to the observation, it SHOULD be used in lieu of a decimal value Visual Acuity (using the data type REAL) or Visual Acuity (using a data type ST).

6.3.3.3.5.1 Observation Constraints

1. For the visual acuity observation, the <code> element SHALL use a code with qualifiers (HL7 CD data type).
2. The code SHALL use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation qualifier or a code from the DICOM code from Context Group (CID 4216 Ophthalmic Visual Acuity Type).

3. The following codes are provided to express the scope of this template; additional visual acuity based SNOMED CT Observable Entity and DICOM CID 4216 codes MAY be used.

SNOMED CT Value Set

Code Value	Code Description
424622008	Potential Acuity Meter Visual Acuity
419775003	Best Corrected Visual Acuity
420050001	Uncorrected Visual Acuity
419475002	Pinhole Visual Acuity
425141002	Brightness Acuity Testing Visual Acuity

DICOM Value Set CID 4216

Code Value	Code Description
111685	Autorefraction Visual Acuity
111686	Habitual Visual Acuity
111687	Prescription Visual Acuity

4. The required qualifier for the visual acuity observation <code> element SHALL use a SNOMED CT that specifies the distance viewing type from the table below. Additional visual acuity based SNOMED CT codes MAY be used.

SNOMED CT “Viewing Distance Type” Value Set

Code Value	Code Description
251743004	Near Visual Acuity
251739003	Distance Visual Acuity
418553009	Intermediate Visual Acuity

Example XML Code for the use of multiple visual acuity qualifiers

```

.....
  <qualifier>
    <name code='106231008' display name='special information qualifier'
codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />
    <value code='111686' displayName='Habitual Visual Acuity'
codeSystem='1.2.840.10008.2.16.4' codeSystemName='DCM' />
  </qualifier>

  <qualifier>
    <name code='106231008' display name='special information qualifier'
codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />
    <value code='419475002' displayName='Pinhole Visual Acuity'
codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />
  </qualifier>
  <qualifier>
    <name code='106231008' display name='special information qualifier'
codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />
    <!--Left or right spectacle lens
    <value code='2517739003' displayName='Distance Visual Acuity'
codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />
  </qualifier>
.....

```

6.3.3.3.6 <text><reference value='#xxx' /></text> -OR- <text>text</text>

1. Each visual acuity observation measurement entry MAY contain a <text> element providing the free text that provides the same information as the observation within the narrative portion of the document with a <text> element.
2. For CDA based uses of visual acuity Observations, this element SHALL be present, and SHALL contain a <reference> element that points to the related string in the narrative portion of the document.
3. For HL7 Version 3 based uses, the <text> element MAY be included.

6.3.3.3.7 <statusCode code='completed' />

1. The status code of all observations SHALL be completed.

6.3.3.3.8 <effectiveTime value=' ' />

1. The <effectiveTime> element SHALL be present in visual acuity observations and SHALL record the date and time when the measurement was taken.
2. This element SHOULD be precise to the day. If the date and time is unknown, this element SHOULD record that using the nullFlavor attribute.

Note: The organizer is required to capture the <effectiveTime> so if a nullFlavor is provided for the value of the underlying observation the <effectiveTime> can be inferred from the organizer

6.3.3.3.9 <value xsi:type=' ' .../>

1. The value of the observation SHALL be recorded using a data type appropriate to the observation.
2. Content modules derived from the visual acuity measurements observation content module MAY restrict the allowable data types used for the observation.

6.3.3.3.10 <author><assignedAuthor

classCode='ASSIGNED'>...<assignedAuthor></author>

In CDA uses, Visual Acuity Measurements Observations are assumed to be authored by the same author as the document through context conduction.

1. Specific authorship of an observation MAY be represented by listing the author in the header and referencing the author in a <author> relationship.
2. If authors are explicitly listed in documents, an <id> element SHOULD reference the ID of the author in the header through an assignedAuthor Role.
3. If the author of the observation is not an author of the document the <person> object including a name and ID SHALL be included.
4. For HL7 Version 3 purposes, the <author> element SHOULD be present unless it can be determined by conduction from organizers or higher level structures.
5. When used for HL7 Version 3 the role element name is <assignedEntity> and the author SHALL be represented as an <assignedPerson> element.

6.3.3.4 Refractive Measurements Organizer 1.3.6.1.4.1.19376.1.12.1.3.3

A Refractive Measurements Organizer collects refractive measurement observations.

6.3.3.4.1 Specification

Example XML Code

```

<organizer classCode='CLUSTER' moodCode='EVN'>
  <templateId root='1.3.6.1.4.1.19376.1.12.1.3.3' />
  <id root=' ' extension=' ' />
  <code code='366060000' displayName='Refractive Measurement-Finding'
    codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' /> <statusCode
code='completed' />
  <effectiveTime value=' ' />
  <targetSiteCode code=' ' codeSystem=' ' codeSystemName=' ' />
  <!-- optional method code
  <methodCode code=' ' codeSystem=' ' codeSystemName=' ' />
  <!-- For HL7 Version 3 Messages
  <author classCode='AUT'>
    <assignedEntity1 typeCode='ASSIGNED'>
      :
    <assignedEntity1>
  </author>
  -->
  <!-- one or more refractive measurement observations -->
  <component typeCode='COMP'>
    <observation classCode='OBS' moodCode='EVN'>
      <templateId root='1.3.6.1.4.1.19376.1.12.1.3.6' />
      :
    </observation>
  </component>
</organizer>

```

6.3.3.4.2 <organizer classCode='CLUSTER' moodCode='EVN'>

1. The refractive measurement organizer SHALL be a cluster of refractive measurements observations.

6.3.3.4.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.3.3' />

1. The refractive measurement organizer SHALL have the <templateId> elements shown above to indicate the constraints of this specification.

6.3.3.4.4 <id root=' ' extension=' ' />

1. The organizer SHALL have an <id> element.

6.3.3.4.5 <code code='366060000' displayName='Refractive Measurement-Finding' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. The <code> element SHALL be recorded as shown above to indicate that this organizer captures information about patient refractive measurements.

6.3.3.4.6 <targetSiteCode code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. The targetSiteCode SHALL be used to record which eye is being observed by this organizer.

- The targetSiteCode SHALL use one of the following SNOMED CT Anatomical Structure (91723000) codes.

SNOMED CT “Anatomical Structure” Value Set

Code Value	Code Description
362503005	Entire left eye
362502000	Entire right eye

6.3.3.4.7 <methodCode code=' ' codeSystem=' ' codeSystemName=' '/>

- The methodCode element SHALL be used to record the specific method used to make a measurement.
- SNOMED CT Procedure hierarchy (71388002) SHOULD be used for method codes; however, other code sets MAY be used, if desired.
- The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
397277005	Subjective refraction
397276001	Objective refraction
397524001	Retinoscopy
397278000	Cycloplegic refraction

- The methodCode uses a code with qualifiers (HL7 CD data type), therefore multiple codes MAY be included as qualifiers.

For example, methodCode 397277005, Subjective refractions could be conveyed with a qualifier code of 397278000, Cycloplegic refraction.

6.3.3.4.8 <statusCode code='completed'/>

- The status code of all organizers SHALL be completed.

6.3.3.4.9 <effectiveTime value=' '/>

- The effective time element SHALL be present to indicate when the measurement was taken.
- The <effectiveTime> element SHALL be precise to at least the day.

6.3.3.4.10 <author typeCode='AUT'><assignedEntity1 typeCode='ASSIGNED'>...</assignedEntity1></author>

- For use with HL7 Version 3, Refractive Measurements organizers SHALL contain an <author> element to represent the person or device.

6.3.3.4.11 <!-- one or more refractive measurements observations --> <component typeCode='COMP'>

1. The organizer SHALL have one or more <component> elements that are <observation> elements using the Refractive Measurement Observation template.

6.3.3.5 Refractive Measurement Observations 1.3.6.1.4.1.19376.1.12.1.3.7

The refractive measurements observation entry is meant to be an abstract representation of many of the refractive measurements observations used in this specification. It can be made concrete by the specification of a few additional constraints, namely the vocabulary used for codes, and the value representation.

6.3.3.5.1 Specification*Example XML Code*

```
<observation classCode='OBS' moodCode='EVN'>
  <templateId root='1.3.6.1.4.1.19376.1.12.1.3.7' />
  <id root='' extension='' />
  <code code='' displayName='' codeSystem='' codeSystemName='' />
  <!-- for CDA -->
  <text><reference value='#xxx' /></text>
  <statusCode code='completed' />
  <effectiveTime value='' />
  <repeatNumber value='' />
  <value xsi:type='' ... />
  <author typeCode='AUT'>
    <assignedAuthor typeCode='ASSIGNED'><id ... /></assignedAuthor> <!-- for CDA -->
    <!-- For HL7 Version 3 Messages
    <assignedEntity typeCode='ASSIGNED'>
      <Person classCode='PSN'>
        <determinerCode root=''>
          <name>...</name>
        </Person>
      <assignedEntity>
        -->
    </author>
</observation>
```

6.3.3.5.2 <observation classCode='OBS' moodCode='EVN'>

1. These acts are refractive measurements observations that have occurred, and SHALL be recorded using the <observation> element as shown above.

6.3.3.5.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.3.7'>

1. The <templateId> element identifies this <observation> as a refractive measurements observation, allowing for validation of the content. The templateId SHALL appear as shown above.

6.3.3.5.4 <id root=' ' extension=' ' />

1. Each observation SHALL have an identifier.

6.3.3.5.5 <code code=' ' displayName=' ' codeSystem=' ' codeSystemName=' '/>

1. A refractive measurements observation entry SHALL use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation.
2. The following codes are provided to express the scope of this template; additional SNOMED CT Observable Entity codes MAY be used.

Opt	observation/code	Data Type	Unit of Measure
R [1..1]	251795007, SNOMED CT, Power of Sphere	PQ	Diopters
R [1..1]	251797004, SNOMED-CT, Power of Cylinder	PQ	Diopters
R [0..1]	251799001, SNOMED-CT, Axis of Cylinder	PQ	Degrees
R [0..1]	397282003, SNOMED-CT, Reading Addition Power	PQ	Diopters
R [0..1]	251802005 + 251795007, SNOMED-CT, Intermediate Distance Power	PQ	Diopters
R [0..1]	397258008, SNOMED-CT, Interpupillary distance	PQ	mm

A code may be constructed using the SNOMED CT Compositional Grammar. If that approach is selected, a code may be constructed from multiple SNOMED codes, which may include multiple concept descriptors, qualifiers, etc.

6.3.3.5.6 <text><reference value='#xxx'/></text> -OR- <text>text</text>

1. Each refractive observation measurement entry MAY contain a <text> element providing the free text that provides the same information as the observation within the narrative portion of the document with a <text> element.
2. For CDA based uses of refractive Observations, this element SHALL be present, and SHALL contain a <reference> element that points to the related string in the narrative portion of the document.
3. For HL7 Version 3 based uses, the <text> element MAY be included.

6.3.3.5.7 <statusCode code='completed'/>

1. The status code of all observations SHALL be completed.

6.3.3.5.8 <effectiveTime value=' '/>

1. The <effectiveTime> element SHALL be present in standalone observations and shall record the date and time when the measurement was taken.
2. This element SHOULD be precise to the day. If the date and time is unknown, this element SHOULD record that using the nullFlavor attribute.

Note: The organizer is required to capture the <effectiveTime> so if a nullFlavor is provided for the value of the underlying observation the <effectiveTime> can be inferred from the organizer.

6.3.3.5.9 <value xsi:type=' ' .../>

1. The value of the observation SHALL be recorded using a data type appropriate to the observation.
2. Content modules derived from the refractive measurements observation content module MAY restrict the allowable data types used for the observation.

6.3.3.5.10 <author><assignedAuthor

classCode='ASSIGNED'>...<assignedAuthor></author>

In CDA uses, Refractive Measurements Observations are assumed to be authored by the same author as the document through context conduction.

1. Specific authorship of an observation MAY be represented by listing the author in the header and referencing the author in a <author> relationship.
2. If authors are explicitly listed in documents, an <id> element SHOULD reference the ID of the author in the header through an assignedAuthor Role.
3. If the author of the observation is not an author of the document the <person> object including a name and ID SHALL be included.
4. For HL7 Version 3 purposes, the <author> element SHOULD be present unless it can be determined by conduction from organizers or higher level structures.
5. When used for HL7 Version 3 the role element name is <assignedEntity> and the author SHALL be represented as an <assignedPerson> element.

6.3.3.6 Keratometry Measurements Organizer 1.3.6.1.4.1.19376.1.12.1.3.4

A Keratometry Measurements Organizer collects keratometry measurement observations.

1. If the keratometry measurements are believed to be of poor reliability an interpretation code SHOULD be entered to indicate that fact.
2. If keratometry is attempted and no measurements are able to be obtained, text SHOULD be entered to indicate that fact in the Refractive Measurements [1.3.6.1.4.1.19376.1.12.1.2.9](#) content module general description field.

6.3.3.6.1 Specification

Example XML Code

```

<organizer classCode='CLUSTER' moodCode='EVN'>
  <templateId root='1.3.6.1.4.1.19376.1.12.1.3.4' />
  <id root=' ' extension=' ' />
  <code code='Code Been requested' displayName='Keratometry Measurements'
    codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' /> <statusCode
code='completed' />
  <effectiveTime value=' ' />
  <targetSiteCode code=' ' codeSystem=' ' codeSystemName=' ' />
  <!--optional method code
  <methodCode code=' ' codeSystem=' ' codeSystemName=' ' />
  <!--optional interpretation code
  <interpretationCode code=' ' codeSystem=' ' codeSystemName=' ' />
  <!-- For HL7 Version 3 Messages
  <author classCode='AUT'>
    <assignedEntity1 typeCode='ASSIGNED'>
      :
    <assignedEntity1>
  </author>
  -->
  <!-- one or more visual acuity observations -->
  <component typeCode='COMP'>
    <observation classCode='OBS' moodCode='EVN'>
      <templateId root='1.3.6.1.4.1.19376.1.12.1.3.6' />
      :
    </observation>
  </component>
</organizer>

```

6.3.3.6.2 <organizer classCode='CLUSTER' moodCode='EVN'>

1. The keratometry measurement organizer SHALL be a cluster of keratometry measurement observations.

6.3.3.6.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.3.4' />

1. The keratometry measurement organizer SHALL have the <templateId> elements shown above to indicate the constraints of this specification.

6.3.3.6.4 <id root=' ' extension=' ' />

1. The organizer SHALL have an <id> element.

6.3.3.6.5 <code code='Code been requested' displayName='Keratometry Measurements' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. The <code> element SHALL be recorded as shown above to indicate that this organizer captures information about patient keratometry measurements.

6.3.3.6.6 <targetSiteCode code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. The targetSiteCode SHALL be used to record the eye being observed by this organizer.
2. The targetSiteCode SHALL use one of the following SNOMED CT Anatomical Structure (91723000) codes.

Code Value	Code Description
362503005	Entire left eye
362502000	Entire right eye

6.3.3.6.7 <methodCode code=' ' codeSystem=' ' codeSystemName=' '/>

1. The methodCode element SHALL be used to record the specific method used to make a measurement.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used for method codes; however, other code sets MAY be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
122869004 + 87982008	Manual Measurement
122869004 + 8359006	Automated Measurement
	...

6.3.3.6.8 <interpretationCode code=' ' codeSystem=' ' codeSystemName=' '/>

1. If there is an interpretation that can be performed using an observation result (e.g., high, borderline, normal, low), these MAY be recorded within the interpretationCode element.
2. The SNOMED CT Clinical Findings hierarchy (404684003) SHOULD be used for interpretation codes, however, other code sets MAY be used, if desired (e.g., ICD-10).
3. The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
232138009	Irregular Astigmatism Cornea
82649003 + 82334004	Astigmatism Indeterminate
.....

6.3.3.6.9 <statusCode code='completed'/>

1. The status code of all organizers SHALL be completed.

6.3.3.6.10 <effectiveTime value=' '/>

1. The effective time element SHALL be present to indicate when the measurement was taken.
2. The <effectiveTime> element SHALL be precise to at least the day.

6.3.3.6.11 <author typeCode='AUT'><assignedEntity1 typeCode='ASSIGNED'>...</assignedEntity1></author>

1. For use with HL7 Version 3, Refractive Measurements organizers SHALL contain an <author> element to represent the person or device.

6.3.3.6.12 <!-- one or more refractive measurements observations --> <component typeCode='COMP'>

1. The organizer SHALL have one or more <component> elements that are <observation> elements using the Keratometry Measurement Observation template.

6.3.3.7 Keratometry Measurement Observations 1.3.6.1.4.1.19376.1.12.1.3.8

The keratometry measurements observation entry is meant to be an abstract representation of many of the keratometry measurements observations used in this specification. It can be made concrete by the specification of a few additional constraints, namely the vocabulary used for codes, and the value representation.

6.3.3.7.1 Specification

Example XML Code

```

<observation classCode='OBS' moodCode='EVN'>
  <templateId root='1.3.6.1.4.1.19376.1.12.1.3.8' />
  <id root='' extension='' />
  <code code='' displayName='' codeSystem='' codeSystemName='' />
  <!-- for CDA -->
  <text><reference value='#xxx' /></text>
  <statusCode code='completed' />
  <effectiveTime value='' />
  <repeatNumber value='' />
  <value xsi:type='' ... />
  <author typeCode='AUT'>
    <assignedAuthor typeCode='ASSIGNED'><id ... /></assignedAuthor> <!-- for CDA -->
    <!-- For HL7 Version 3 Messages
    <assignedEntity typeCode='ASSIGNED'>
      <Person classCode='PSN'>
        <determinerCode root=''>
          <name>...</name>
        </Person>
      </assignedEntity>
    </author>
  </observation>

```


6.3.3.7.2 <observation classCode='OBS' moodCode='EVN'>

1. These acts are keratometry measurements observations that have occurred, and SHALL be recorded using the <observation> element as shown above.

6.3.3.7.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.3.8'>

1. The <templateId> element identifies this <observation> as a keratometry measurements observation, allowing for validation of the content. The templateId SHALL appear as shown above.

6.3.3.7.4 <id root=' ' extension=' ' />

1. Each observation SHALL have an identifier.

6.3.3.7.5 <code code=' ' displayName=' ' codeSystem=' ' codeSystemName=' ' />

1. A keratometry measurements observation entry SHALL use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation.
2. The following codes are provided to express the scope of this template; additional keratometry based SNOMED CT Observable Entity codes MAY be used.

Opt	observation/code	Data Type	Unit of Measure
R [1..1]	Code been requested, SNOMED CT, Keratometry Steep Power	PQ	Diopters or mm
R [1..1]	Code been requested, SNOMED-CT, Keratometry Steep Axis	PQ	Degrees
R [1..1]	Code been requested, SNOMED-CT, Keratometry Flat Power	PQ	Diopters or mm
R [1..1]	Code been requested, SNOMED-CT, Keratometry Flat Axis	PQ	Degrees

6.3.3.7.6 <text><reference value='#xxx' /></text> -OR- <text>text</text>

1. Each keratometry observation measurement entry MAY contain a <text> element providing the free text that provides the same information as the observation within the narrative portion of the document with a <text> element.
2. For CDA based uses of keratometry Observations, this element SHALL be present, and SHALL contain a <reference> element that points to the related string in the narrative portion of the document.
3. For HL7 Version 3 based uses, the <text> element MAY be included.

6.3.3.7.7 <statusCode code='completed'/>

1. The status code of all observations SHALL be completed.

6.3.3.7.8 <effectiveTime value=' '/>

1. The <effectiveTime> element SHALL be present in standalone observations and SHALL record the date and time when the measurement was taken.
2. This element SHOULD be precise to the day. If the date and time is unknown, this element SHOULD record that using the nullFlavor attribute.

Note: The organizer is required to capture the <effectiveTime> so if a nullFlavor is provided for the value of the underlying observation the <effectiveTime> can be inferred from the organizer.

6.3.3.7.9 <value xsi:type=' ' .../>

1. The value of the observation SHALL be recording using a data type appropriate to the observation.
2. Content modules derived from the keratometry measurements observation content module MAY restrict the allowable data types used for the observation.

6.3.3.7.10 <author><assignedAuthor

classCode='ASSIGNED'>...<assignedAuthor></author>

In CDA uses, Keratometry Measurements Observations are assumed to be authored by the same author as the document through context conduction.

1. Specific authorship of observation MAY be represented by listing the author in the header and referencing the author in a <author> relationship.
2. If authors are explicitly listed in documents, an <id> element SHOULD reference the ID of the author in the header through an assignedAuthor Role.
3. If the author of the observation is not an author of the document the <person> object including a name and ID SHALL be included.
4. For HL7 Version 3 purposes, the <author> element SHOULD be present unless it can be determined by conduction from organizers or higher level structures.
5. When used for HL7 Version 3 the role element name is <assignedEntity> and the author SHALL be represented as an <assignedPerson> element.

6.3.3.8 Lensometry Measurements Organizer 1.3.6.1.4.1.19376.1.12.1.3.5

A Lensometry Measurements Organizer collects lensometry measurement observations.

6.3.3.8.1 Specification

Example XML Code

```

<organizer classCode='CLUSTER' moodCode='EVN'>
  <templateId root='1.3.6.1.4.1.19376.1.12.1.3.5' />
  <id root='' extension='' />
  <code code='Code been requested' displayName='Lensometry Measurements'
    codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' /> <statusCode
code='completed' />
  <effectiveTime value='' />
  <targetSiteCode code='421591000' displayName='Spectacle Lens (physical object)'
codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />
  <qualifier>
    <name code='106231008' display name='special information qualifier'
codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />
    <!--Left or right spectacle lens
    <value code='' displayName='' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED
CT' />
  </qualifier>
  <!--optional method code
  <methodCode code='' codeSystem='' codeSystemName='' />
  <!-- For HL7 Version 3 Messages
  <author classCode='AUT'>
    <assignedEntity1 typeCode='ASSIGNED'>
      :
    <assignedEntity1>
  </author>
  -->
  <!-- one or more lensometry measurement observations -->
  <component typeCode='COMP'>
    <observation classCode='OBS' moodCode='EVN'>
      <templateId root='1.3.6.1.4.1.19376.1.12.1.3.9' />
      :
    </observation>
  </component>
</organizer>

```

6.3.3.8.2 <organizer classCode='CLUSTER' moodCode='EVN'>

1. The lensometry measurement organizer SHALL be a cluster of lensometry measurements observations.

6.3.3.8.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.3.5' />

1. The lensometry measurement organizer SHALL have the <templateId> elements shown above to indicate the constraints of this specification.

6.3.3.8.4 <id root=' ' extension=' ' />

1. The organizer SHALL have an <id> element.

6.3.3.8.5 <code code='Code been requested' displayName='Lensometry Measurements' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. The <code> element SHALL be recorded as shown above to indicate that this organizer captures information about spectacle measurements (lensometry).

6.3.3.8.6 <targetSiteCode code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />

1. The targetSiteCode SHALL be used to record which lens is being observed by this organizer.
2. The targetSiteCode SHALL use the following SNOMED CT Spectacle Lens Physical Object (421591000) code with qualifiers (HL7 CD data type).

SNOMED CT “Spectacle Lens” Value Set

Code Value	Code Description
421591000	Spectacle Lens (physical object)

3. The required qualifier for the targetSiteCode element when using the SNOMED CT Spectacle Lens code SHALL use a SNOMED CT code that specifies the laterality of the lens type from the table below. Where the name code of the qualifier type SHALL be <name code='106231008' display name='special information qualifier'.

SNOMED CT “Spectacle Lens” qualifier Value Set

Code Value	Code Description
24028007	Right
7771000	Left

6.3.3.8.7 <methodCode code=' ' codeSystem=' ' codeSystemName=' '/>

1. The methodCode element SHALL be used to record the specific method used to make an observation.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used for method codes; however, other code sets MAY be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
122869004 + 87982008	Manual Measurement
122869004 + 8359006	Automated Measurement
	...

6.3.3.8.8 <statusCode code='completed' />

1. The status code of all organizers SHALL be completed.

6.3.3.8.9 <effectiveTime value=' '/>

1. The effective time element SHALL be present to indicate when the measurement was taken.
2. The <effectiveTime> element SHALL be precise to at least the day.

6.3.3.8.10 <author typeCode='AUT'><assignedEntity1 typeCode='ASSIGNED'>...</assignedEntity1></author>

1. For use with HL7 Version 3, Lensometry Measurements organizers SHALL contain an <author> element to represent the person or device.

6.3.3.8.11 <!-- one or more lensometry measurements observations --> <component typeCode='COMP'>

1. The organizer SHALL have one or more <component> elements that are <observation> elements using the Lensometry Measurement Observation template.

6.3.3.9 Lensometry Measurement Observations 1.3.6.1.4.1.19376.1.12.1.3.9

The lensometry measurements observation entry is meant to be an abstract representation of many of the lensometry measurements observations used in this specification. It can be made concrete by the specification of a few additional constraints, namely the vocabulary used for codes, and the value representation.

6.3.3.9.1 Specification

Example XML Code

```

<observation classCode='OBS' moodCode='EVN'>
  <templateId root='1.3.6.1.4.1.19376.1.12.1.3.9' />
  <id root='' extension='' />
  <code code='' displayName='' codeSystem='' codeSystemName='' />
  <!-- for CDA -->
  <text><reference value='#xxx' /></text>
  <statusCode code='completed' />
  <effectiveTime value='' />
  <repeatNumber value='' />
  <value xsi:type='' ... />
  <author typeCode='AUT'>
    <assignedAuthor typeCode='ASSIGNED'><id ... /></assignedAuthor> <!-- for CDA -->
    <!-- For HL7 Version 3 Messages
    <assignedEntity typeCode='ASSIGNED'>
      <Person classCode='PSN'>
        <determinerCode root=''>
          <name>...</name>
        </Person>
      </assignedEntity>
    </-->
  </author>
</observation>

```

6.3.3.9.2 <observation classCode='OBS' moodCode='EVN'>

1. These acts are lensometry measurements observations that have occurred, and SHALL be recorded using the <observation> element as shown above.

6.3.3.9.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.3.9' />

1. The <templateId> element identifies this <observation> as a lensometry measurement observation allowing for validation of the content. The templateId SHALL appear as shown above.

6.3.3.9.4 <id root=' ' extension=' ' />

1. Each observation SHALL have an identifier.

6.3.3.9.5 <code code=' ' displayName=' ' codeSystem=' ' codeSystemName=' ' />

1. A lensometry measurements observation entry SHALL use a SNOMED CT code to identify the observation.
2. The following codes are provided to express the scope of this template; additional SNOMED CT codes MAY be used.

Opt	observation/code	Data Type	Unit of Measure	Value Set
R [1..1]	251795007, SNOMED CT, Power of Sphere	PQ	Diopters	
R [1..1]	251797004, SNOMED-CT, Power of Cylinder	PQ	Diopters	
R [0..1]	251799001, SNOMED-CT, Axis of Cylinder	PQ	Degrees	
R [0..1]	397282003, SNOMED-CT, Reading Addition Power	PQ	Diopters	
R [0..1]	251802005, SNOMED-CT, Intermediate Distance with qualifier 251795007, SNOMED-CT, Power of Sphere	PQ	Diopters	
R [0..1]	251762001, SNOMED-CT, Prism Strength with qualifier 24020000, SNOMED-CT, horizontal	PQ	Diopters	
R [0..1]	246223004, SNOMED-CT, Prism Base Direction with qualifier 24020000, SNOMED-CT, horizontal	CD		255561001, SNOMED-CT, Medial 49370004, SNOMED-CT, Lateral
R [0..1]	251762001, SNOMED-CT, Prism Strength with qualifier 33096000, SNOMED-CT, vertical	PQ	Diopters	

Opt	observation/code	Data Type	Unit of Measure	Value Set
R [0..1]	246223004, SNOMED-CT, Prism Base Direction with qualifier 33096000, SNOMED-CT, vertical	CD		64217000, SNOMED-CT, Superior 261089000, SNOMED-CT, Inferior
R [1..1]	246155009, SNOMED-CT, Type of lens	CD		50121007, SNOMED-CT, Single vision glasses 397283008, SNOMED-CT, Multifocal glasses 397285001, SNOMED-CT, Bifocal glasses 397284002, SNOMED-CT, Trifocal glasses 397286000, SNOMED-CT, Progressive addition glasses if applicable
R[0..1]	50121007, SNOMED-CT, Eyeglasses	ST		Description of the eye glasses (physical object being measured)
R [0..1]	397258008, SNOMED-CT, Interpupillary distance	PQ	mm	

6.3.3.9.6 <text><reference value='#xxx' /></text> -OR- <text>text</text>

1. Each lensometry observation measurement entry MAY contain a <text> element providing the free text that provides the same information as the observation within the narrative portion of the document with a <text> element.
2. For CDA based uses of lensometry Observations, this element SHALL be present, and SHALL contain a <reference> element that points to the related string in the narrative portion of the document.
3. For HL7 Version 3 based uses, the <text> element MAY be included.

6.3.3.9.7 <statusCode code='completed' />

1. The status code of all observations SHALL be completed.

6.3.3.9.8 <effectiveTime value=' ' />

1. The <effectiveTime> element SHALL be present in standalone observations and shall record the date and time when the measurement was taken.
2. This element SHOULD be precise to the day. If the date and time is unknown, this element SHOULD record that using the nullFlavor attribute.

Note: The organizer is required to capture the <effectiveTime> so if a nullFlavor is provided for the value of the underlying observation the <effectiveTime> can be inferred from the organizer.

6.3.3.9.9 <value xsi:type=' ' .../>

1. The value of the observation SHALL be recorded using a data type appropriate to the observation.
2. Content modules derived from the refractive measurements observation content module MAY restrict the allowable data types used for the observation.

6.3.3.9.10 <author><assignedAuthor

classCode='ASSIGNED'>...<assignedAuthor></author>

In CDA uses, Lensometry Measurements Observations are assumed to be authored by the same author as the document through context conduction.

1. Specific authorship of an observation MAY be represented by listing the author in the header and referencing the author in a <author> relationship.
2. If authors are explicitly listed in documents, an <id> element SHOULD reference the ID of the author in the header through an assignedAuthor Role.
3. If the author of the observation is not an author of the document the <person> object including a name and ID SHALL be included.
4. For HL7 Version 3 purposes, the <author> element SHOULD be present unless it can be determined by conduction from organizers or higher level structures.
5. When used for HL7 Version 3 the role element name is <assignedEntity> and the author SHALL be represented as an <assignedPerson> element.